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Corporate Startup Growth Program

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Tiivistelmä

Jatkuva innovaatioiden tuottaminen on välttämätöntä kilpailuedun saamiseksi ja säilyttämiseksi millä tahansa liiketoimialalla. Kohdeyritys Nokia pyrkii tehostamaan innovaatiotoimintojaan hyödyntämällä ulkoisia innovaation lähteitä, joista yksi on jatkuvasti kasvava startupyhteisö. Yhteistyö startupien kanssa avaa mahdollisuuden sovittaa uusia tuotteita nopeasti Nokian tarjontaan ohittamalla samalla tuotekehityksen hankalan alkuvaiheen.

Tutkimuksen päätarkoituksena oli havaita Nokian ja startupien välisessä yhteistyössä ilmenneet haasteet ja kehittää niihin ratkaisut. Myös startupien liiketoiminnan kasvua kiihdyttäviä menetelmiä tutkittiin. Tutkimuksen toivottiin luovan prosessin, jonka avulla Nokia pystyy systemaattisesti työskentelemään startupien kanssa.

Tutkimustyössä havaittiin Nokian kohtaavan ongelmia, jotka ovat tyypillisiä myös muissa startupien kanssa työskentelevissä suuryrityksissä. Näitä ovat muun muassa selkeän vastuurakenteen ja vision puuttuminen sekä raskaat, suuryrityksille tarkoitetut prosessit. Vaikka ongelmat ovat yleisiä, niille ei ole olemassa valmiiksi sovellettavia ratkaisuja. Ratkaisut tulee kehittää tapauskohtaisesti räätälöityinä. Tutkimuksen tuloksena Nokialle kehitettiin startuphojelma, joka koostuu neljästä rakennuspalikasta: Perustukset, vikkelä ympäristö, vaiheittainen kumppanuus ja ekosysteemi. Ohjelman avulla Nokia pystyy hyödyntämään ulkoisia innovaatioita ja startupit saavat uutta kasvua. Tutkimus laati käytännön askeleet ohjelman käyttöönottamiseksi sekä arvioi ohjelman ylläpitoon vaadittavat resurssit.

Avainsanat suuryritys, innovaatio, kasvu, startup, kiihdyttämö

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Abstract

Sustaining a constant flow of innovation is necessary to obtain and maintain competitive advantage in any line of business. To enhance its innovation activities, the case company, Nokia Corporation, aims to embrace external sources of innovation, one of which is the ever growing startup community. Collaboration with startups enables Nokia to swiftly expand its product offering while avoiding the tedious early stages of new product development.

The main purpose of the research was to identify the challenges that have emerged in the collaboration between Nokia and startups, and to formulate solutions to overcome them. Methods of accelerating startup growth were also explored. The desired outcome of the research was a light weight process, which Nokia could use to systematically work with startups.

The findings of the research suggest that the challenges Nokia is facing are common in other large corporations, which are looking to collaborate with startups. These include the lack of clear ownership structure and vision, and heavy processes designed for large corporations. Even though the problems are common, no universally applicable solutions exist. The solutions need to be formulated and customized for each case separately. As a result of the study, a startup collaboration program was created for Nokia, comprising of four main building blocks: Foundation, Agile Environment, Gradual Partnership and Ecosystem. Through this program, Nokia may embrace external innovations while startups shall find new growth. The study provides practical implementation steps and an estimate of the resources required to maintain the program.

Keywords corporation, growth, innovation, startup, accelerator

Acknowledgements

The journey which ultimately led me to sit down and write this Master's thesis started in 2012. At the time I was finishing my second year of Bachelor's studies with no clear direction in mind for future. Out of the blue I decided to apply for a student exchange for the next semester and go somewhere far away, somewhere different. My choice? Shanghai, China. The first domino block tipped over and the chain of unplanned events had begun.

Only after my arrival in Shanghai did I learn that my exchange university hosts a special unit where innovation and product development are taught. The unit was called *Design Factory*. This place was like no other in my exchange university for its culture, people and teaching style. It was in Design Factory where I was first introduced to the ways of innovation and I was immediately hooked on the topic. I studied most of my Master's courses and made some of my dearest friends there.

I ended up staying for nearly two years in Shanghai until finally returning to Finland for good. Or that's what I thought. Next year my former teacher from Shanghai introduced me to a mysterious Chinese inventor with an interesting idea for a startup and he needed a co-founder to commercialize it. I had been planning on founding my own startup company ever since I was introduced to innovation and this was my chance. I jumped in to the turbulent world of startups and was soon on my way back to China. The next two years turned out to be the toughest and the most fruitful school I had ever experienced, and I loved it. It became clear that I will be involved with startups one way or another for the rest of my career even if my own startup would fail. Indeed, after two years of building a startup in China I had to admit defeat and close the company. However, I had learned more than I ever could have learned from sitting in lectures, and more importantly, I now had a clear direction in my career and the courage to pursue it.

The final domino piece in the chain is this thesis. Soon after our startup had faded away I stumbled upon an opportunity to view startups from another perspective, namely from a large corporation's point of view. Nokia was looking to become an active member in startup ecosystems and initiated two Master's theses to investigate the topic, one of which was mine. Writing this thesis at Nokia was an unforgettable experience. The discussions and ideations with Nokia employees gave me an exceptional peek into the machinery of a large corporation, and I in turn provided them a startup's viewpoint.

As often said, the journey is just as important as the destination. There's no way I could cram all the wonderful experiences into one thesis. Perhaps I'll reserve the time to write them down some other day. Likewise, no words may enough express my gratitude to everyone who have guided me, supported me and challenged me on the way to keep me on the right track. I want to thank especially my teacher Matti Hämäläinen for being a mentor in every turn throughout the years, my instructor Mahnoush Renani for guiding me through this thesis and my professor Kalevi Ekman for inspiring me to keep aiming higher. Special thanks to also the other employees of Nokia and the communities of Design Factory, SLUSH, The Shortcut and everyone else involved in the startup world I've had the pleasure to meet for being awesome!

Espoo 16.10.2017

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1 Introduction

1.1 Background and Purpose

Nokia Corporation, hereinafter "Nokia", is a Finnish communications and information technology company which is a leading player in the telecommunications industry. Recently Nokia has started facing the same challenge as its main competitors: The traditional telecommunications business with communications service providers has not seen any growth in recent years and is in fact only expected to shrink in the future. To find new growth, Nokia has formulated a new strategy called "Rebalancing for Growth", as described in the newest annual report (Nokia Corporation 2016). It recognizes innovation and incubation of new opportunities as one of the main pillars for gaining competitive advantage and aims at bringing new business areas to the core of Nokia. Throughout its history Nokia has undergone drastic transformations shifting from one industry to another, and the next major change will be towards Internet of Things (IoT) applications. This area is among the fastest growing markets and has some of the most innovative and revolutionary technology startups. The new strategy calls to action all sources of innovation in realizing the transformation.

One of the innovation sources Nokia has already attempted to tap into is the startup ecosystem. Partnership with smaller companies opens up a relatively quick method of complementing the current offering of Nokia with innovative solutions without having to develop everything from scratch. As the growing popularity of entrepreneurship in the last decade has led to an ever growing amount of startups, the time is favorable for capitalizing on external innovation. At the time of writing this thesis, however, attempts at startup collaboration have not been successful at Nokia. There has not been any process, program or other structure in place to provide guidance for startup collaboration, and this is hypothesized to be the cause for the unsatisfactory results.

This thesis was initiated to investigate the challenges Nokia is facing in collaboration with startups and to propose measures for better embracing their innovation potential. It first finds the best practices of other corporations through literature research and uses the findings as a starting point for empirical research to identify and solve the challenges. Nokia wishes to construct a process or a program for standardized collaboration approach with startups which is light weight in governance and does not

require funding the startups. The main activities would include co-development with startups to complement Nokia's current offering and to explore new business areas.

1.2 Research Goals

The research aims at creating a blueprint of a systematic approach in collaboration between Nokia and startups to make such operations smooth and continuous. It also aims to propose measures with which Nokia may help the startups succeed. While comparisons to other corporations provide useful insights, due to its case specific nature the research focuses mainly on Nokia and does not aim to create a solution immediately applicable universally. Since Nokia wishes to implement any improvements as soon as possible, emphasis in the thesis is given to practicality and ease of taking action.

Based on the research goals, the main research problem may be defined:

- How can Nokia better embrace collaboration with startups?

The main research problem may be split into two sub-problems:

1. What kind of internal processes and tools are needed in Nokia to allow startup collaboration?

The first sub-problem includes the challenges in the structures of Nokia which slow down or prevent collaboration with smaller and fast moving companies.

2. How can Nokia hasten the business development of startups it wants to collaborate with?

The second sub-problem includes the needs of startups and the measures which Nokia may take to build mutual success. The more successful a partner is the less risk and more stability the partnership poses to Nokia.

1.3 Thesis Scope

This thesis investigates the structures of Nokia across departments and areas of work. In areas requiring deep expertise, such as legal matters, only higher level solutions are proposed. Details of exact technical execution in such topics are not provided but instead action points for their development and implementation are listed.

The blueprint created in this thesis serves as the first solution version. Both the thesis writer and the subject (Nokia) understand the importance of experimentation and prefer approaching the challenges through iterative improvement, since unexpected challenges may arise during implementation. This means the solutions provided in the thesis are not final. They lay the framework for future development following the principles of lean methodology.

Research concerning ecosystems and the recommendations of building one are disregarded in this thesis since another thesis focusing specifically on startup ecosystem dynamics was initiated simultaneously at Nokia.

1.4 Research Methods

Since the thesis was initiated to create a new structure in Nokia from scratch, there was little prior knowledge or foundation to build on. The research was therefore started with literature review to solidify understanding of the environment, possibilities and currently existing methods for solving the research problems. This includes studying dozens of publications and online benchmarking of other corporations in a similar situation and independent influencers like startup accelerators. While peer reviewed publications on the topic are scarce, many commercial market reports conducted by consultancy firms, funds and other institutions exist on the topic. Several possible solution models were identified in literature review which laid the starting point for empirical research.

Since an actionable and practical outcome is desirable, case specific empirical research is underlined. As companies have different cultures, varying organizational structures and tools, models used in other corporations may not be directly applicable in Nokia. In any situation where literature review and empirical findings contradict, the empirical research shall be viewed as the more credible source. Empirical research is carried out qualitatively mainly through discussion based interviews and observation. Discussion based interviews have little pre-defined structure and are thus useful for identifying new problems and formulating creative solutions. In cases where organizing an interview was not feasible, a short questionnaire was sent with the most relevant questions via email instead. Interviewees represent three categories (number of individual interviewees in brackets):

1. Startup programs and corporations working with startups (11)
2. Nokia employees (18)
3. Startup companies (6)

Solution formulation followed similar methods as empirical research. After identifying challenges and problems, solutions were drafted in discussions with Nokia employees with specific expertise in a related area. Many of the interviewees participated in several discussions in an iterative manner. Some were interviewed several times a month throughout the whole research. The iterative process was utilized to ensure the solutions are implementable and realistic, as each solution draft has been reviewed and received feedback from Nokia employees with deep knowledge in the subject.

2 Literature Review

The purpose of literature review in this thesis is to map out existing methods and models for startup collaboration. Identifying the most common pitfalls and the most impactful aspects of the methods allows creating a better foundation for empirical research.

2.1 Startup definition

To begin with, the exact definition of a startup company varies throughout literature depending on the source and context, as does its spelling. The Cambridge Dictionary of Cambridge University Press (2017) lists "start-up" with a hyphen as the primary spelling form but also recognizes "startup" without hyphen as an equally acceptable form. This thesis uses the spelling form "startup" since it was found to be more common in the source materials referenced. This spelling is also used in some of the most impactful publications in the startup world such as The Lean Startup by Eric Ries (2011), which is praised by many to be among the most influential works in the topic of startups (Blank, S. 2013).

As to what a startup actually is, at the time of conducting this literature review there is no universally accepted definition. Many sources, such as dictionaries define startups by their age and refer to them as "a business that has just been started" and "a new business, or the activities involved in starting a new business" (Cambridge Dictionary 2017b). Blank and Dorf (2012) define startups as temporary organizations in search of scalable, repeatable, profitable business models. The temporary nature of the organization refers to a startup eventually transforming into an ordinary company, as illustrated in Figure 2.1. A startup is also defined through their characteristics such as having promising ideas, agility, ability to take risks and aspirations of rapid growth offering (Goldstein, Lehmann 2015; Weiblen, Chesbrough 2015). In this thesis a startup shall be defined as a combination of the earlier definitions: *A recently founded company aiming for rapid growth through a new disruptive business model or offering*. Since Nokia is mainly interested in technologically advanced startups, the focus of the research is on tech startups.

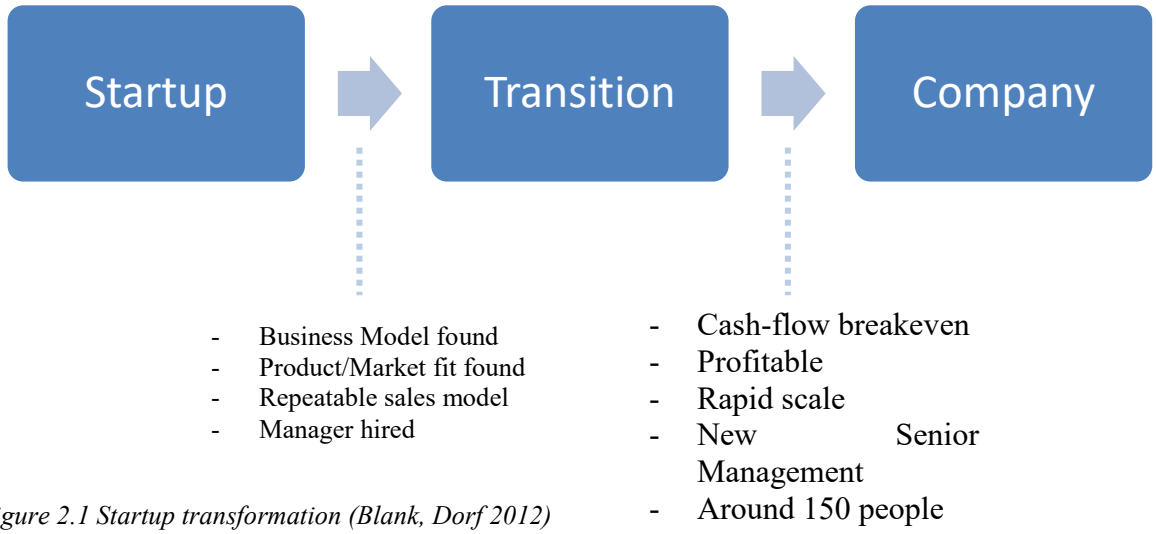

Figure 2.1 Startup transformation (Blank, Dorf 2012)

2.2 Attractiveness of collaboration

In today's global ecosystem maintaining sustainable competitive advantage is not possible with a single innovation, as each innovation only provides a transient advantage. To stay competitive, a company must be able to produce innovation constantly. (Weiblen, Chesbrough 2015.) Since a single entity can no longer find the full spectrum of talent and resources internally to implement a sustainable and profitable innovation flow, companies need to search for innovation resources externally (Chesbrough 2003). Recently startups have been gaining increasing attention among corporations as a source of external innovation (Kohler 2016).

A small startup and a large corporation have very different characteristics and ways of conducting business (Weiblen, Chesbrough 2015). Both may benefit from collaboration when facilitated correctly and the amount of collaboration programs between corporations and startups have seen a dramatic increase in recent years (Kanbach, Stubner 2016; Ream, Schatsky 2016; Goldstein, Lehmann 2015).

2.2.1 Startup Strengths and Interests

Startup strengths

The strengths of a startup company naturally vary depending on their development stage, business area and other factors, but they may be described on a general level as laid out by Weiblen and Chesbrough (2015) according to the following list:

1. **Creative ideas:** A startup is normally founded upon a creative idea which it attempts to turn into an actual innovation. This makes startups inherently creative
2. **Agility:** Due to the light organizational structure, startups are able to react quickly to changes in their environment and adapt to new situations
3. **Risk tolerance:** Agility allows startups to take risks by experimenting with unknown factors and quickly pivot if unsuccessful
4. **Growth focus:** Aiming for rapid growth is embedded in the very definition of startups and their operations are aimed at growing fast

Startup interests

Ream and Schatsky (2016) propose there are four reasons why a startup would consider collaboration with a corporation by joining a corporate startup program. These are funding, industry-focused mentoring, resources and future customers. In a survey of more than 400 deep tech startups, Harlé et al. (2017) identified the importance order for a similar set of reasons for collaboration. Of the surveyed startups 43% ranked corporations as the preferred partner for market access, followed by technical knowledge at 26%, business knowledge at 19% and funding at 17%. On the other hand, ignoring the preferred partner, the majority of startups ranked funding (80%) and market access (61%) among their top three critical needs. This would suggest market access and funding are the two clear top priorities for startups. (Harlé et al. 2017.) The importance of funding to startups has also been confirmed by Christiansen (2009) and Kohler (2016) in their independent surveys where startups ranked connections to capital as the most important benefit of startup accelerators, along with credibility brought by the brand of the host corporation. The findings of startup interests in corporate collaboration from these sources are convergent and may be combined as the following:

1. **Market access:** Quick expansion to new market areas and acquisition of new customers
2. **Funding:** Receiving an equity or non-equity investment
3. **Credibility:** Partnership with an established and well-known entity communicates trustworthiness and helps closing sales deals and find funding
4. **Knowledge:** Insights in technology and market intelligence in the specific business area through mentoring and coaching

5. **Resources:** Assistance in areas where the startup has little or no existing expertise

2.2.2 Corporation Strengths and Interests

Corporation strengths

Weiblen and Chesbrough (2015) describe the strengths of a large corporation as access to resources, scale, power and routines. Goldstein and Lehmann (2015) list the strengths in a similar manner and the two descriptions may be combined into the following list:

1. **Resources:** Large corporations generally have a great amount of human resources, connections, knowledge and data and cash at their disposal
2. **Scale:** Through their resources, corporations have the capability to quickly scale up new business opportunities
3. **Brand power:** The brand reputation of a corporation brings credibility and negotiation advantage in business interactions
4. **Process excellence:** The routines needed to run a proven business model efficiently exist in well-established corporations

Corporation interests

Just as with startups, corporations have varying reasons to engage in collaboration. Ream and Schatsky (2016) propose the main value in startup collaboration for corporations is captured through four different channels, namely technology and trend insights, quick and efficient R&D, direct economic returns and attracting top level talent. Kohler (2016) also identified similar goals of corporations planning on hosting startup accelerator programs. The four main interests are:

1. **Trend insights:** Collaboration may serve as a discovery process for the latest innovations and a preparation tool for upcoming disruptions
2. **Rapid R&D:** The host corporation saves the effort and resources of creating a new product, service or model from scratch
3. **Economic returns:** Direct profits may be yielded through equity ownership, increased revenue or other channels
4. **Talent acquisition:** Startup collaboration allows corporations to scan and assess high-caliber talent

2.2.3 Mutual complements

In theory, when the strengths and interests of both parties are connected, the combination of a startup and a corporation should amount to an unstoppable force (Weiblen, Chesbrough 2015). The benefits look clear to both parties, and it does not come as a surprise that 97% of tech startups wish to develop long-term partnerships with corporations and 82% of corporations view startup interactions as "somewhat important" or "very important" (Harlé et al. 2017).

2.3 Collaboration obstacles

Despite the great interest towards collaboration, its execution in practice has turned out more difficult than expected and many attempts at creating corporate startup collaboration programs have failed (Weiblen, Chesbrough 2015). Even though nearly all tech startups are interested in forming long-term corporate partnerships and 83% of them have tried establishing a contact, only 57% of them have succeeded in it (Harlé et al. 2017). Another report found that 50% of startups rated their experience in corporate interaction "terrible", "difficult" or "average" (Imaginatic, Masschallenge 2016). The most common obstacles and challenges in forming partnerships identified by Harlé et al. (2017), Imaginatic and Masschallenge (2016), Kohler (2014) as well as Crichton (2014) include the following:

1. **Unsuited startups:** Unsuitable level of maturity or unfitting value proposition for collaboration from startup
2. **Undefined relationship:** No clear vision for collaboration in business, knowledge and HR objectives from both parties
3. **Goal misalignment:** Pursuing different goals leading the collaboration into a dead end
4. **Process misalignment:** Complex and slow corporate decision making process cuts down the agility of the startup
5. **Lack of communication:** Slow or disconnected communication between the startup and the corporation causing confusion and misalignment
6. **Unclear startup role:** Lack of defined status and role for the startup in the corporation

7. **Lack of sponsorship:** Having no high-level sponsorship within the corporation prevents using resources to establish partnerships
8. **Lack of buy-in:** The business units on the corporate side not being interested or motivated to work with the startup

2.4 Collaboration methods

Weiblen and Chesbrough (2015) propose the following categorization for corporate startup collaboration based on the source and direction of innovation: Inside-out and outside-in. The inside-out startup programs invite employees and entrepreneurs to build upon the non-core ideas and concepts developed by the host corporation. The host corporation may then benefit from new products and services or directly through equity ownership if the idea leads to a spin-off company. The outside-in startup programs look to make interesting startup products or technologies available to the sponsoring corporation by attracting external ideas. This model gives the corporation a head start over its competitors and makes expansion into new "hot" areas more efficient. (Weiblen, Chesbrough 2015.) Since the main focus in this thesis is in the collaboration between a large corporation and a startup company, only the outside-in model is considered in the research.

Within the outside-in category, Weiblen and Chesbrough (2015) identify three main types of collaboration programs: Co-working spaces, incubators and accelerators. A report conducted by Unitus Seed Fund [USF] (2015) identifies an additional program type, hyper accelerator. The differences and characteristics of each of the four program types are visualized by USF (2015) and complemented by Weiblen and Chesbrough (2015) in Figure 2.2. The main differentiating factors between the program types are the scope and development stage of participating startups, participant objectives and activities carried out during the program. Startup scope refers to the distance between the business of the startup and the core business of the host corporation. (USF 2015.)

2.4.1 Co-Working Space

Co-working spaces are often confused with shared offices (Capdevila 2015). They both are open-plan office environments in which participants work alongside other unaffiliated professionals for a fee (Spinuzzi 2012). They generally provide the residents with access to normal office facilities and equipment such as desks, meeting

rooms and printers. The critical differentiating feature between the two is the aspiration of co-working spaces to embrace the knowledge sharing dynamics of the community to foster innovation. (Capdevila 2015.)

The most successful co-working spaces with regards to the amount of innovations produced are the ones with the most cohesion and interaction within their local community (Capdevila 2015). The host of a co-working space may contribute to the development of community dynamics by organizing informal events, meetups and lectures. The activities mainly focus on interaction and personal development of the entrepreneurs, such as interpersonal skills and career coaching. The level of active contribution of the host varies between co-working spaces. (Capdevila 2014.) Co-working spaces typically do not offer formal or mandatory programs such as business training. They generally do not have time-limited residence times, competitive admission or graduation criteria. The motivation for hosting a co-working space is normally the revenue stream it produces. (International Business Innovation Association [INBIA] 2017.)

Of the four program types, the idea scope of participants is the widest in a co-working space, which means there is little industry focus to gather participants from a specific field of business (USF 2015).

2.4.2 Corporate incubator

Corporate incubators are specialized units or programs within a corporation which pursue the objective of supporting growth through hatching new businesses and enhancing technology base (Gassmann, Becker 2006). Incubators generally offer similar services and facilities to a co-working space but have much more active mentoring and coaching aspects (INBIA 2017; Gassmann, Becker 2006). This includes the office facilities, entrepreneurial development oriented coaching, support in negotiations and organizational planning, networking and sometimes financing in form of equity investment (Gassmann, Becker 2006; Dempwolf et al. 2014).

Incubators normally have competitive admission, allowing the host organization to narrow down the scope of participating startups based on their industry, stage, demographics and so on (INBIA 2017). Corporate incubators are thus able to take the long-term strategic goals of the corporation into account (Gassmann, Becker 2006). The

participants join the incubator on a rolling basis (as opposed to cohort's fixed annual starting dates) and their residence time is typically measured in years (INBIA 2017; Dempwolf et al. 2014). The startups or entrepreneurs entering an incubator are normally still in the idea-stage (USF 2015; Gassmann, Becker 2006), creating the need for lengthy residence.

2.4.3 Corporate Accelerator

Corporate accelerators are programs specialized towards advancing the strategic goals of the host corporation (Kohler 2016). They aim to build up competitive advantage and accelerate innovation by growing and managing portfolios of complementary startups for the host corporation (CorpVenturing 2017). Compared to incubators, accelerators are more intense and business centric programs (USF 2015; INBIA 2017). The intensive nature of corporate accelerators allows driving innovation at a fast pace and find the next-generation products in the related industry, which the host corporation may help commercialize (CorpVenturing 2017).

Even though the business model for corporate accelerators is different from independent stand-alone accelerators, they work with startups at the same stage of development: established companies with an invention which is ready to be transformed into a commercial product (Kohler 2016). For the services offered, corporate accelerators mimic stand-alone accelerators (Weiblen, Chesbrough 2015; Dempwolf et al. 2014). They provide intense coaching and mentoring with often mandatory attendance during a 3-6 month period (INBIA 2017), focusing on business building, validation, go-to-market, networking and fund hunting. Mentor and coach engagement is significantly higher in accelerators compared to incubators. (USF 2015.) The program ends in a demo day where participating startups pitch their business to media and investors (Dempwolf et al. 2014). In contrast to incubators, a shared co-location is not always necessary and an accelerator may be run nearly fully in a virtual environment (Kohler 2016).

The technology scope of accelerators is narrower than incubators, as the profit assumptions of the host are built around generating revenue and complementary products (Dempwolf et al. 2014). Corporate ownership through equity investments has also been a central feature and profit channel of corporate accelerators (Weiblen, Chesbrough 2015; Kohler 2016).

2.4.4 Hyper accelerator

Hyper accelerators are a form of accelerator programs which have a very specific technology focus. The main objective is to quickly scale up the business of participating startups which are already generating revenue and require little to no technology development assistance from the host. This leads to a faster path to generating revenue but reduces the innovation output since the host has limited influence over the development direction of a late-stage startup. Activities in hyper accelerators center on customer acquisition and market expansion. Similar to accelerators, hyper accelerators are cohort based, short term programs, but with a faster speed from entry of a startup to formal business operations, e.g. resales. They rarely offer shared co-location though. (USF 2015.)

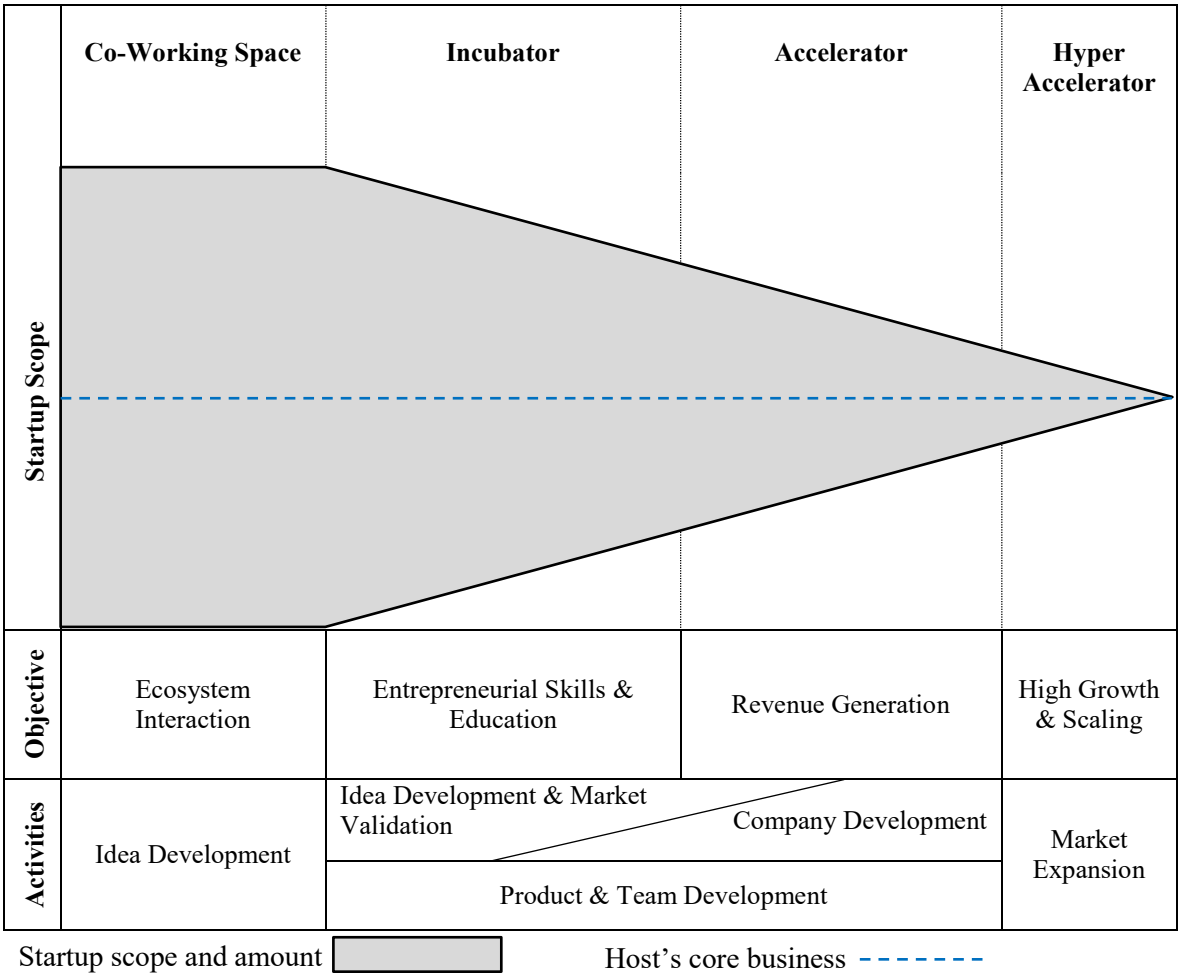

Figure 2.2 Traditional corporate startup collaboration program types

2.4.5 Corporate Venture Capital

Corporate Venture Capital is one of the oldest collaboration methods (Weiblen, Chesbrough 2015). It is not a definite program type in itself but it is traditionally present in incubators, accelerators and hyper accelerators (USF 2015, Dempwolf et al. 2014). Equity stakes in relevant startups allow the sponsoring corporation to influence the decisions of their portfolio startups and potentially gain direct economic returns (Weiblen, Chesbrough 2015). Chesbrough (2002) propose two defining attributes for corporate venture capital arms: Strategic benefit versus direct economic gain, and tight partner interaction versus loose partner interaction. Generally the corporate venture capital arms fall somewhere along the spectrum between the extremes in the two dimensions (Chesbrough 2002).

2.4.6 Recent trend in corporate accelerators

Weiblen and Chesbrough (2015) identify a wave of new outside-in collaboration models which have seen rise in the recent years. The new models differ from traditional methods in two characteristics. Firstly, corporate equity ownership is typically no longer involved and secondly, the programs do not provide the same level of services as seen in incubators or accelerators. They are tailored to allow the host corporation to utilize a standardized approach with a larger number of startups. Otherwise they have similar characteristics as traditional corporate accelerators such as medium startup scale, close relation to the host's core business and short term time horizon of involvement. As a result, the governance process is much lighter and the corporation's risk is reduced. (Weiblen, Chesbrough 2015.)

2.5 Crafting a collaboration program

Harlé et al (2017) emphasize the importance of customizing the program models to fit each corporation case by case and avoid implementing a standard turnkey solution. Since Nokia is looking to work with already established startups and wishes the program to require as light weight governance as possible without involving funding, a custom variation of a corporate accelerator following the recent trend seems most suitable for Nokia. Such a program provides moderate level of product innovation at a speedy phase (Weiblen, Chesbrough 2015), and is thus a suitable starting point for

further research. The further research will explore the building blocks for a light weight variation of a corporate accelerator program.

2.5.1 Collaboration program design framework

Harlé et al. (2017) propose a framework for designing a platform for corporate collaboration with startups comprising of five design steps, as visualized in Figure 2.3. The first step is to define a **clear mandate** which aligns with corporate innovation strategy to ensure high-level sponsorship. In order to form a strong mandate four main issues need to be addressed:

1. **Innovation objective:** To strengthen current core business or to expand into new business areas
2. **R&D focus:** Which domains and industries are prioritized
3. **Maturity profile:** In which development stage are the preferred startups
4. **Resources:** Which resources are available for running the collaboration program (Harlé et al. 2017.)

The second step is setting up an **agile collaboration environment**. This may be a specialized function within the corporation or alternatively a set of transverse processes, key performance indicators (KPI) and contact points for startups. Setting up the environment includes making adjustments in procurement process, legal processes and financing to be suited for startup collaboration. At the same time, experts and "champions" shall be appointed from the corporation to serve as mentors and project managers for collaboration. Their function is to enable sharing of knowledge and resources between startups and the corporation. The top management and business units should also be involved in the collaboration environment to ensure alignment with corporate strategy and top level buy-in. (Harlé et al. 2017.)

As a third step, a **transition process** to becoming a formal partner shall be designed in a form of a temporary and less formal relationship with limited commitment. During the transition period, both parties may validate and demonstrate the potential of the collaboration and the decision of whether or not to continue with the relationship shall be made. At least the following issues should be addressed during the transition process:

1. **Objective alignment:** Ensure transparency and that both parties agree to pursue the same objective from the beginning
2. **Intellectual property rights (IPR):** Define technology ownership and exclusivity matters upfront to avoid risk of conflict
3. **Test project:** Validate or improve the value proposition through short-term projects to build momentum within the corporation
4. **Roadmap:** Agree on the milestones and a common roadmap with transparency to proceed efficiently
5. **Adaptation:** Objectives, roadmaps and other plans need to be reviewed regularly to ensure agility and the ability to react to emerging situations
6. **Contract design:** Craft a contract that ensures alignment of interests and that the value created is partitioned fairly (Harlé et al. 2017.)

Setting up a system for more **formal partnerships** to reach specific business goals is the fourth step. While Harlé et al. (2017) recommend involvement of corporate venture capital at this stage, investments are disregarded in the research since Nokia is not looking to found a new corporate venture capital arm for the purpose of startup collaboration. The structure of formal partnerships depends on the defined objectives, resources and startup maturity, and therefore no universally applicable standard format exists. It may be graduation to a formal supplier level and beginning of product distribution, or it may be the beginning of co-development of technology. (Harlé et al. 2017.)

Finally, as the fifth step, the host corporation may look to create a **startup ecosystem** around the projects and encourage peer-to-peer interaction (Harlé et al. 2017). Increased peer-to-peer activity is linked to greater innovation output (Capdevila 2015; USD 2015). Alternatively, in case local ecosystems already exist, the host corporation should tap into the currently existing ecosystems and be highly involved in their activities. Being part of an ecosystem helps in finding the best startups, enables sharing and receiving of knowledge and allows the host to utilize the offerings in the ecosystem. (Kohler 2014.)

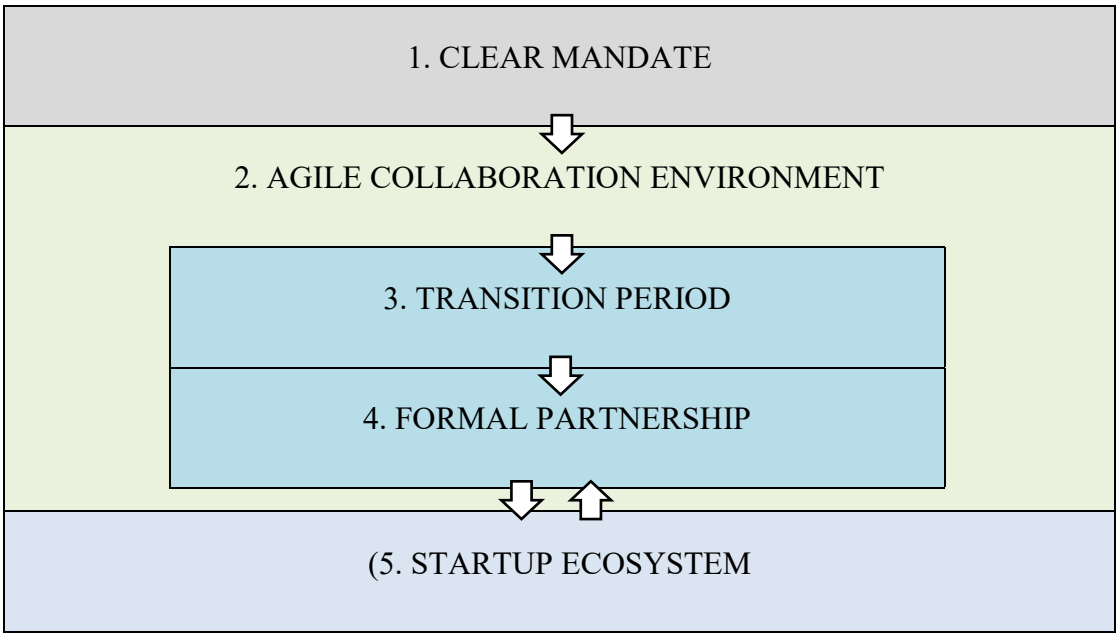

Figure 2.3 Corporate startup program framework (Harlé et al. 2017)

2.5.2 Corporate accelerator design tasks

Kohler (2014) identifies a set of design tasks the corporate leaders need to have an answer for when creating a corporate accelerator program. The tasks are categorized in four themes: Proposition as in what the program offers, process as in how the program is run, people as in who is involved and place as in where the accelerator is hosted. (Kohler 2014.)

Proposition: Define the relationship between the corporation and the startup should create mutual value.

1. **Set innovation goal:** The strategic intent for collaboration should be clear as to whether the focus is on complementary products, market expansion, corporate culture rejuvenation or other objectives
2. **Align with startup goals:** To ensure mutual value, the most critical startup expectations need to be addressed, including access to resources, credibility, market access and finding funding
3. **Retain startup independence:** Investing in all startups for equity becomes a bottleneck slowing down the whole process and hampers the founders drive, and thus equity investment should only be provided in special cases

4. **Enforce vertical focus:** Working with startups in a specific limited vertical allows more efficient use of resources, such as technology mentors, and clarifies the process (Kohler 2014.)

Process: Lay out the structure of the accelerator program from start to finish, including its length and features.

1. **Compress innovation cycle:** Avoid stretching out the program and aim for as compact duration as possible to enable efficient resource focus
2. **Balance structure with flexibility:** Since each startup project is unique, always sticking to the pre-defined structure regardless of the situation may cause deadlocks
3. **Provide training:** Especially when working with early-stage startups, training the founders in entrepreneurial skills such as pitching and lean development is recommended
4. **Simplify procedures:** Contracts and procurement process, for example, should be founder friendly to avoid extinguishing the momentum in startup projects
5. **Engage alumni:** Ensure the collaboration plans get advanced into execution after the acceleration period is over and maintain interaction with them (Kohler 2014.)

People: Involving the right internal and external people allows combining extensive business and technology knowledge with fresh startup perspective.

1. **Select startups carefully:** Be sure to select startups which fit in with the innovation objective and find the best startups with outbound efforts
2. **Appoint the right mentors:** The mentors who serve as bridge makers between the startup and the corporation must be capable of working with startups and be skilled in navigating corporate structures
3. **Commit executives:** Ensure the startup operations have buy-in and approval from the highest possible corporate level to improve motivation and momentum
4. **Involve business units:** To avoid friction later during the process and to make sure suitable startups are selected, business units should be involved throughout the acceleration process from startup selection to project hand-over
5. **Provide coaches:** Learning entrepreneurial skills and obtaining technical or business knowledge is one of the primary reasons why startups join accelerators

6. **Foster networking:** Allow startups to learn from each other through peer-to-peer interaction, alumni engagement and external influencer participation
7. **Participate in ecosystems:** To attract the best talent, the accelerator should be active and visible outside the corporation (Kohler 2014.)

Place: Decide on in which location, if any, the corporate accelerator is hosted and by whom it is managed.

1. **Select the hosting model:** Decide if the corporate accelerator will be hosted inside the corporation or outside as an independent entity, or by an external partner with a ready platform such as RocketSpace
2. **Define the space:** Decide if the corporate accelerator will be hosted in a physical location or virtually in an online environment or have elements of both
3. **Foster serendipity:** Nurture the emergence of unexpected opportunities by activating interaction between all participants and the host corporation (Kohler 2014.)

2.5.3 Characteristics of successful programs

In their research USF (2015) identified the nine success factors which separate the most successful accelerator programs from the least successful. In their research success of an accelerator is measured by the percentage of startups still operational and obtained funding 6 months after graduating from the accelerator. The characteristics of successful accelerators are the following:

1. **Active outbound recruiting effort** ensures finding the best startups
2. **Clear vertical or sector focus** allows efficient operations
3. **Fixed cohort starting date** empowers community and brings efficiency
4. **Duration maximum 6 months** to make innovation cycle fast and intensive
5. **Active peer-to-peer interaction** fosters serendipity and learning
6. **Highly engaged mentors** to ensure smoothness of operations and learning (amount of mentors does not correlate with success)
7. **Active alumni interaction** to learn from feedback and discover opportunities
8. **Large external investor network** to ensure startup funding (USF 2015.)

2.6 Literature review conclusion

2.6.1 Verifying benefits

When comparing the strengths and interests of startups to the strengths and interests of corporations, the attractiveness of collaboration is evident. The strengths of each side complement the interests of one another as illustrated in Table 2.1. The findings regarding corporations are also convergent with Nokia's characteristics.

Startup Strengths	Corporation Interests	Corporation Strengths	Startup Interests
Creative ideas →	Trend insights	Scale →	Market access
Agility →	Rapid R&D	Brand power →	Credibility
Risk tolerance →	Talent	→	Funding
Growth focus →	Economic returns	Resources →	Resources
		Process excellence →	Knowledge

Table 2.1 Strength and interest table

2.6.2 Choosing the right model

By comparing the characteristics of each startup collaboration program model to the interests of Nokia, the most suitable model can be identified and selected. The characteristics are assembled in Table 2.2 into a matrix. Since Nokia wishes to find both complementary products and explore completely new types of offering in their current focus verticals, the desired innovation scope is medium (Narrow / Medium / Wide). The cycle speed with which the new offering is implemented to Nokia's business should be as fast as possible (Slow / Medium / Fast). Nokia is not looking to involve equity investing in the program (Yes / No) and prefers a light weight governance model (Light / Medium / Heavy). As seen in the Table 2.2, the recent variation of the corporate accelerator model matches best with the interests of Nokia.

	Innovation scope	Cycle speed	Equity investing	Governance weight
Nokia's interest	Medium	Fast	No	Light
Co-working space	Wide	Slow	No	Light
Corporate incubator	Wide / Medium	Slow	Normally No	Medium
Traditional corporate accelerator	Medium / Narrow	Medium / Fast	Normally Yes	Heavy
Recent corporate accelerator	Medium / Narrow	Medium / Fast	No	Light
Corporate hyper accelerator	Narrow	Fast	N/A	Medium

Partial match | Full match

Table 2.2 Program characteristics comparison table

2.6.3 Program building blocks

Comparing the program building recommendations of Harlé et al. (2015) and Kohler (2014) reveals they are highly converging. This is illustrated in Figure 2.4. Both include a majority of the main topics from one another with a few exceptions. To avoid confusion, let it be noted the order of the topics and tasks have been altered for clarity in the comparison figure.

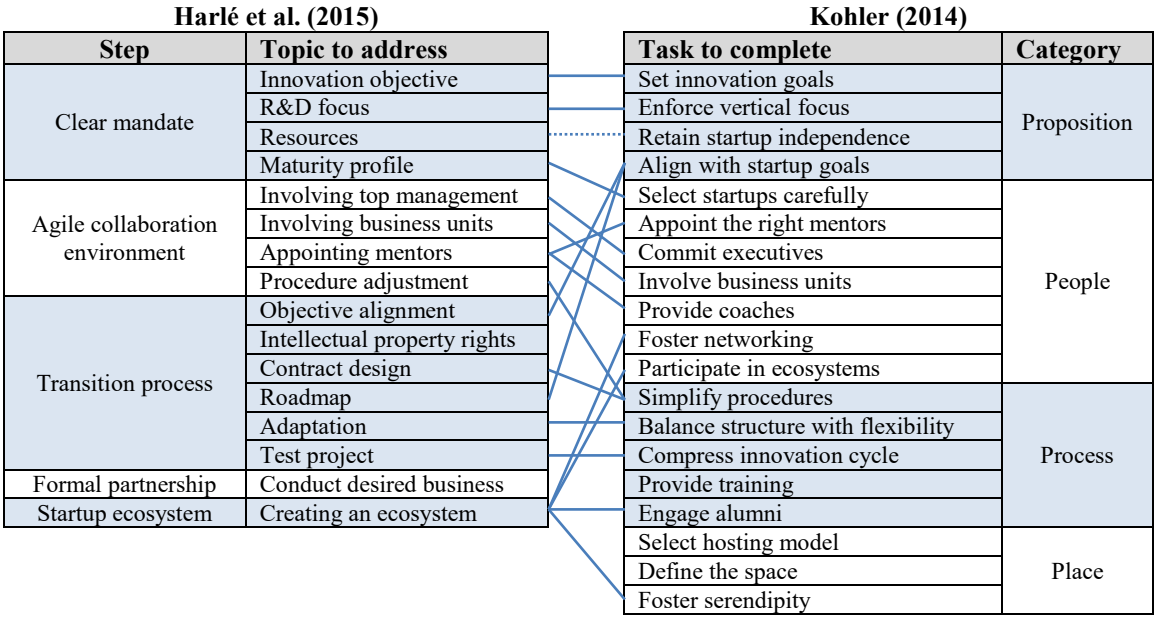

Figure 2.4 Program building block comparison

Based on the building recommendations of Harlé et al. (2015) and Kohler (2014), a unified set of startup program building blocks can be constructed. The new set shall use

the recommendations of Harlé et al. (2015) as the foundation structure. The description of the new startup program building blocks are as follows:

1. **Foundation:** Strategic tasks to align the program with corporate long term plan
2. **Agile environment:** Preparatory tasks to create a startup friendly environment
3. **Transition process:** Operational tasks to execute startup collaboration
4. **Partnership:** Any activities which happen after the program
5. **Ecosystem:** Creating an active and self-powering startup ecosystem

When compared to the characteristics of successful startup programs identified by USF (2015), it is seen that most of the characteristics can be fulfilled by the new set of program building blocks. The only new addition to the set from the characteristics identified by USF (2015) is outbound startup recruiting effort, which shall be included in the Foundation block as the task "Define startup attraction model". This task includes planning the methods and propositions for recruiting the most potential startups into the program. To avoid failure, the building blocks shall also address the most common causes of failure introduced in chapter 2.3. The comparison to success characteristics and causes of failure is illustrated in Figure 2.5 by numbering the success characteristics and causes of failure, and marking the tasks which can address the respective characteristics and causes.

As seen from how the success characteristics and causes of failure are distributed among the building blocks, careful planning of the foundation and ecosystem has a major positive impact on the program's success. Meanwhile, the majority of the negative impact happens during creation of the agile environment and execution of the transition process block.

Building block	Task to complete	
Foundation	Define innovation objective	
	Define vertical focus	②
	Reserve resources (non-investment)	
	Define desired startup profile	② 1
	Define startup attraction model	①
	Select hosting model	③ ④
	Define location	
	Receive executive support	7
Agile environment	Involve business units	8
	Appoint motivated and skilled mentors	⑥ 5 6
	Adjust procedures	4
	Allow structural flexibility	③ ④
Transition process	Align mutual objectives	2 3 6
	Define IPR upfront	2
	Define and communicate roadmap	2 3 5 6
	Set environment for fast project testing	4
	Provide coaching and training	
Partnership	Conduct desired business	
Ecosystem	Foster internal and external networking	⑤ ⑦ ⑧
	Engage in local ecosystems	① ⑧
	Engage in local ecosystems	① ⑧

Success characteristics
① Active outbound recruiting effort
② Clear vertical or sector focus
③ Fixed cohort starting date
④ Duration maximum 6 months
⑤ Active peer-to-peer interaction
⑥ Highly engaged mentors
⑦ Active alumni interaction
⑧ Large external investor network

Causes of failure
1 Unsuited startups
2 Undefined relationship
3 Goal misalignment
4 Process misalignment
5 Lack of communication
6 Unclear startup role
7 Lack of sponsorship
8 Lack of buy-in

Figure 2.5 Failure and success distribution in building blocks

2.6.4 Theoretical framework

As stated in literature, no universally applicable standard solution exists and the details of each program need to be customized specifically for the host corporation. Literature review has provided the basic foundation to build upon and to use as a starting point when shaping the building blocks towards an implementable form.

Let it be noted that even though the importance of startup ecosystems is highlighted in many sources, it will not be investigated further in this thesis. Any aspect related to startup ecosystems are examined in another thesis initiated simultaneously at Nokia. The theoretical framework of the corporate accelerator program structure formed in conclusion of the literature review with its specifications is laid out in Table 2.3. It is used as the foundation for further development.

Corporate accelerator program theoretical framework	
Innovation scope:	Complementary and new products
Schedule:	Maximum length of 6 months
Services:	• Minimal coaching • Active mentoring
Objectives:	Market access
Activities:	Co-development and peer-to-peer interaction
Equity involvement:	No
Building blocks:	• **Foundation:** Strategy • **Agile environment:** Preparations • **Transition process:** Operations • **Partnership:** Conducting business • **Ecosystem:** Serendipity

Table 2.3 Theoretical framework of corporate accelerator program for Nokia

3 Empirical verification and supplementation of findings

As there is now a starting point for building the startup program based on literature review, empirical research is conducted to validate the findings and to identify new problems not brought up in literature. The research will investigate the suitability of a recent variation of a corporate accelerator program in Nokia and propose changes if needed. The interviewees are listed in appendix 1.

3.1 Interview method

Verification is done through interviewing independent startup programs, corporations collaborating with startups, Nokia employees and startup companies. The interviews are discussion based with little to no pre-defined structure. This qualitative type of interviewing technique is also called unstructured informal interviewing, and its freely flowing nature helps finding new and unexpected information but subsidizes the commensuration of the interviews (Jennings 2005). To compensate for the lack of commensuration, a few main topics were determined before the interview to prevent the discussion from derailing to other topics.

The interviews were normally 60 minutes long and were conducted via teleconference, video call, in Nokia's office or in the interviewee's office. Notes were taken during the interviews by the interviewer.

3.2 Startup program interviews

The startup program interviewees include representatives of several types of Finnish startup programs as well as corporations involved with startup collaboration. The interviewees were found through online searching, networks and referrals by other startup programs in Finland.

1. Accelerators
2. Business consultancy
3. Corporate accelerator
4. Corporate accelerator platform
5. Entrepreneurship association
6. Hyper accelerator

7. Incubator
8. Startup assisting association

While the main focus in the research is on corporate programs, independent startup programs are involved for their longer experience and availability. The interviewees do not include any representatives of sole co-working spaces since their model is too distant from Nokia's interests and is thus not a relevant subject for further research.

The interviews include startups that have experience in startup accelerator programs. They were interviewed to see if the startup's view of accelerators is convergent with the accelerators' view.

3.2.1 Main topics

To keep the interviews relevant, the purpose and main topics were defined beforehand and kept in mind during the discussions. The purpose of interviewing startup programs is to identify best practices and structures most commonly used in the programs, and to compare them to the literature review findings. The interviews also include ideation of how the best practices could be applied at Nokia since in many cases the methods are not implementable at Nokia without modifications. The common topics, in which most of the findings may be categorized to, are:

1. What offerings are provided to startups
2. What is the business model
3. How to find good startups
4. What do startups need most
5. What are the most common problems

3.2.2 Results

What offerings are provided to startups

The service offering provided to participating startups varies between the program types, as expected. In independent programs which have no corporation host, the offering is centralized around coaching of entrepreneurial skills, especially sales and pitching. An exception is hyper accelerator where the offering is focused solely on quick scaling through customer acquisition, and little entrepreneurial coaching is

provided. The reason for minimal coaching is the lack of need for it since the startups participating in a hyper accelerator are generally on a relatively mature stage and the founders have no time or already have the skills that are normally taught. Networking is a core activity in all programs and it includes both customer acquisition and investor relations.

In corporate hosted programs the offering centralizes around the partnership between the startup and the host corporation. Normally the goal is to turn the startup into a supplier or a technology partner for the host corporation. The coaching of entrepreneurial skills is done through partnering with coaches in the startup ecosystem or by utilizing online learning material. Corporations generally do not have their own coaches for entrepreneurial skills. They do, however, have their own employees as mentors who build the relationship between the startup and host corporation. Mentors are seen as an irreplaceable feature of corporate programs. The amount of networking with investors varies between corporations as does the involvement of corporate venture capital.

What is the business model

Independent programs most often rely on equity stakes in their startups. The amount of equity varies but stays below 15%. It was noted that funding is a sensitive topic, as funding some startups and not others in the program might reduce the credibility of the startups which did not get funded. This could impact the startup's success later and therefore also impact the image of the startup program. Some of the programs interviewed are publicly funded, and with the exception of not taking equity stakes they are identical to private independent programs. This applies to both incubators and accelerators. Hyper accelerator also does not rely on equity stakes since their business model is based on resales and the valuation of their startups is already substantially high.

The most common business model in corporate programs is generating new revenue streams and better customer satisfaction through new complementary products. Equity is not often involved especially during the program period but gets more common later on as the startups have graduated and are conducting business with the host corporation.

How to find good startups

Most of the startup programs believe active scanning and participation in the startup ecosystem is the best method of finding startups with potential. Personal networks, events and databases are all utilized in the search. When scouting in events it is preferred not to have a booth since it ties down the employees and prevents them from scanning the event area. A boothless ticket is also highly more cost efficient. It is generally agreed by all startup programs that a sole online application form is not sufficient in attracting startups. In independent programs the outbound recruiting effort is larger compared to corporate programs.

What startups need most

The needs of startups correlate with their maturity stage. According to startup programs, the earlier in development the startup is, the more the founders appreciate coaching in entrepreneurial skills such as sales and pitching. Other related topics such as basic legal matters are also appreciated. As the startups mature, networking and eventually customer acquisition become the main concerns for them.

What are the most common problems

Startup programs are understandably hesitant to disclose major problems publicly as it is in their interests to protect their image. Some challenges were discovered, however. In the independent programs accepting early stage startups, the founding team composition sometimes leads to problems even with training. This hints towards failure in the startup selection process.

In corporations one of the major issues is dealing with intellectual property rights. A corporate startup program representative emphasized the importance of careful handling of intellectual property rights. Even though startups are afraid of large corporations abusing their creativity, a corporation has to be careful not to intentionally or accidentally cause any trouble to startups via intellectual property disputes. Corporations with significantly dominant market position such as Facebook and Amazon may continue startup collaboration despite being notorious for abusing startups (Weiblen, Chesbrough 2015). However, corporations not as dominant may lose all partnership opportunities to competitors upon receiving bad reputation within the ecosystem.

Another common problem in corporate accelerators is the lack of entrepreneurial culture within the organization, leading to low motivation among the corporate employees towards spending time and effort on startups. Unentrepreneurial culture prevents adjustments in procedures and bureaucracy which in turn become the bottle neck for collaboration programs.

3.3 Startup interviews

The startups interviewed in this category are at the time of writing this thesis working with Nokia. The purpose is to find the exact problems and challenges in their collaboration and interactions with Nokia. These interviews provide direct input for developing the program for Nokia. Some of the startups were interviewed several times and the progress of their collaboration with Nokia was observed.

3.3.1 Main topics

The collaboration between Nokia and startups at the time of writing this thesis had been challenging. All interviews with startups discuss their collaboration experience with Nokia. The main topics discussed are:

1. Overall collaboration experience
2. Needs and expectations of startups
3. Specific problems occurred
4. Positive experiences
5. Improvement suggestions

3.3.2 Results

Overall collaboration experience

All the startups interviewed have mixed feelings towards their experience with Nokia. Startups feel welcomed and well received at first but the experience turns negative upon building the business relationship. Nokia's mentors and other employees in the first line of contact are highly liked and appreciated in startups. As the communication goes beyond the initial contacts of the innovation unit and starts involving technical and business units, startups no longer feel similar drive and momentum in their project.

Needs and expectations of startups

The most common expectation for collaboration with Nokia among startups is increasing their sales by becoming a technology partner or supplier, though integration into Nokia's offering is seen as the more desirable option than being a separate supplier. Startups are looking to utilize Nokia's customer network and gain quickly scaling market access through it. Regarding the exact model for collaboration, e.g. resales, licensing, sales referrals, startups are open for discussion to select the most suitable option with Nokia.

The coaching of entrepreneurial skills, which Nokia at the time of writing this thesis had not offered, is imagined to be a useful bonus, but not at all necessary. If coaching was offered, the topics startups would like to learn more about are business development and large scale sales.

Specific problems occurred

Communication: Nearly all startups feel that communication with Nokia outside the innovation unit is problematic. Communication is described to be slow and startups have struggled to get confirmations on issues or technical details necessary for product integration. Having all communication go through the designated startup mentor at Nokia is seen as the only way to exchange information, but full reliance on mentors is a burden for the whole collaboration. To speed up the progress startups would rather interact directly with Nokia's technology units.

Lack of motivation: Startups have felt there is a deficit of motivation to drive the collaboration project forward outside Nokia's innovation unit and startups do not get attention from other units. Nokia employees in the technology and business units seem too busy to contribute in startup collaboration and have not been willing to make minor technical adjustments to allow better integration of the startup solutions.

Unclear vision: Most startups have no clear understanding of what exactly Nokia expects from the collaboration. The projects feel unstructured and lack clear roadmap towards a common goal. Startups are willing to make adjustments in their solutions to better fit for Nokia but the lack of information prevents them from taking action to improve or speed up the partnership from their side.

Synergy misalignment: In some cases the solutions of startups are seen as overlapping to Nokia's offering instead of being complementary to it. Meanwhile, some startups are too distant from Nokia's core business to have any business partnership potential. In many cases, finding a suitable Nokia project to integrate the startup into has been a struggle.

Complex partnership process: The procedures and bureaucracy get in the way of collaboration according to many startups. Issues such as strict partnership requirements and confusing process for the partner registration in procurement were mentioned. Inability to complete partner registration leads to inability to receive payments from Nokia and to practice any formal collaboration activity.

Heavy contracts: The legal contracts given to startups in the beginning of collaboration are heavy and are clearly designed for interaction between two large corporations. The contracts address issues that are irrelevant to the collaboration at its current state, e.g. strict and detailed liabilities in a case of faulty products even though the goal is to do co-development. Startups lack resources to hire their own legal counsel to understand and manage the legal relationship.

Slow collaboration start: The collaboration between Nokia and startups lacks a kick start and startups feel confused about the process. Startups are not provided with information of the collaboration environment and they are unclear of the roadmap, contacts and content of the collaboration.

Positive experiences

Most of the startups are satisfied with the activity of their mentors in trying to solve the emerged issues. The amount of mentors per startup, one to two, is seen suitable since too many mentors would lead to even more confusion in communication.

Improvement suggestions

Most of the improvement suggestions are directed at solving the emerged problems, though startups do not have enough knowledge of Nokia's structures to give detailed suggestions on how to solve the issues in practice. A commonly occurred idea is involving the contact persons in technology and business units as mentors for the startups, having one business mentor and one technology mentor.

Another suggestion is to turn around the information flow between startups and Nokia. At the time of writing this thesis the startups are asked to provide specifications of their solution and give suggestions to how they could be integrated in Nokia's offering. Startups feel Nokia should instead provide information of Nokia's needs and suggestions for integration since startups are more willing and more able to do the required adjustments thanks to their agility.

Startups would also like to have an onboarding information sheet which contains information of the collaboration process, contact details and information about Nokia employees who may help them with various issues.

3.4 Nokia interviews

Interviewing employees of Nokia who are in direct, indirect or in no relation with startup collaboration allows identifying the root causes for the challenges and problems discovered. Employees were interviewed in numerous units and functions within Nokia to form as comprehensive understanding of the environment as possible. The interview findings are categorized as following:

1. Current activities
2. Startup mentor feedback
3. Procurement and legal
4. Business and strategy

The categorization had not been determined beforehand except for gathering feedback from the startup mentors. Interviews with the startup mentors revealed the need for interviewing Nokia employees in two other categories since understanding the problems discovered related to them require deep understanding and expertise in the topic.

3.4.1 Current activities

Interviewing Nokia employees gives a rounded understanding of the general activities Nokia wishes to carry out with startups. The findings are described on a general level due to their technical complexity and sensitive confidentiality. The main activities are:

Technology co-development: Working together with startups towards new solutions

Technology integration: Integrating startups' technology to Nokia's solutions

Complementary product resales: Selling startups' products to customers

3.4.2 Startup mentor feedback

The most practical level feedback is provided by the Nokia employees assigned as mentors for the startups, as they have the firsthand experience in both sides of the partnership. Each startup has one or two Nokia mentors who dedicate approximately 10% of their time to help startups become integrated in Nokia projects. Many of the problems and challenged discovered by the mentors are in alignment with the views of startups, but mentors are capable of providing more detail for the causes and background of the problems. The issues are also interdependent to some extent, forming a vicious circle.

Communication: The mentors also recognize the slowness and disconnection of communication between startups and Nokia's units. Even mentors themselves as Nokia employees have difficulties in mutual interaction with other units. To sustain communication, mentors need long term and close personal contacts in technology and business units. Not all mentors have these personal contacts and trying to form them for the sole purpose of startup collaboration is not feasible. Mentors feel they are always asking for favors from other units.

Units not involved: The technology and business units of Nokia are not involved from the very beginning of collaboration. Since they do not get to participate in the selection of startups or the strategic planning of startup collaboration, the employees of other units do not feel part of the process, making it difficult for the mentors to motivate them into collaboration.

Lack of resources: Lack of resources or their too strict allocation leads to conflicts of interests. "There are no free-to-use resources which means resources are always stolen from another source", as described by one of the mentors. This most often means using the time of engineers who are fully dedicated to working on other projects that are not related to the startup collaboration.

Lack of motivation: Closely tied to the communication problems is the lack of motivation in technology and business units to participate in startup collaboration. Aside from lack of dedicated resources, another source for this problem is that it is not

seen as profitable business. Since Nokia's revenue is calculated in billions of euros, technology and business units question the rationality of doing business with startups if the potential annual revenue is below a million euros in short term.

Unclear vision: Just like startups, mentors do not have a clear understanding of the expectations for each startup in their respective collaboration projects. Going further, the mentors also have no understanding of what Nokia is looking for in startup collaboration as a whole. This means the strategic innovation objective is either not defined or not communicated to the mentors, causing confusion and difficulty to the mentors in pushing the projects forward. There seems to be no clear ownership for the whole startup collaboration and no driving force responsible for improving the system.

Matchmaking confusion: As a large corporation Nokia has dozens, if not hundreds, of different development projects ongoing. Despite the large number of projects, the mentors have difficulties finding suitable projects to integrate startups into. Finding potentially fruitful projects is done manually by asking for clues within the organization and therefore consumes time. The same problem applies to finding pilot customers for startups. The mentors lack the information of the suitable projects and customer networks of Nokia.

Unsuitable procedures: The mentors have felt that the collaboration is held back by the formal procedures such as procurement process which they cannot do anything about. This includes tedious and strict registration process for becoming a formal partner as well as heavy legal contracts.

Inadequate startup selection: In some cases the startups which have been selected for collaboration are too distant from Nokia's core business or their solutions are overlapping with Nokia's offering. In these cases excitement towards the startup's concept had overdriven selection criteria. As a result some of the selected startups are unsuited for collaboration with Nokia.

Intellectual property rights: The mentors have been unable to advise startups with intellectual property matters since the mentors are not aware of any common guidelines for handling them with startups.

3.4.3 Procurement and legal

Discussing the feedback of mentors with some of the experts in different fields at Nokia helps understanding the causes for the challenges startups and mentors are facing. The interviewees include experts in procurement, pricing department, legal department, and management.

Complex partnership process: The process for registering a company as a formal supplier or partner in Nokia's systems is designed for large corporations which fit in one of the pre-defined categories. Creating a new category for startups has turned out difficult. A fast-track registration process for exceptional cases has been discussed within procurement department but it has not been taken further since it is not seen as an urgent matter and because reducing the amount of formal partners is one of their key performance indicators.

Liability risk: The reason for strict processes and heavy contracts is to minimize liability risks to Nokia. Nokia understandably wants to avoid being sued for possible misconduct caused by its partner companies and therefore simply shortening the contracts and processes is not a realistic option.

Procurement and legal not involved: Procurement has not been involved in any startup projects until a transaction is requested. This leads to situations where the needed transaction is against the guidelines of procurement and cannot be completed. The procurement department will not accept any unexpected cases which they have no previous information of. The legal department has also not been consulted beforehand.

Long payment time: The standard payment time at Nokia is 90 days. For large corporations this poses no problem but a small company may drift into financial difficulties for waiting this long. This repels away startups with potential, causes friction, and hampers momentum in startup projects. The procurement department has discussed fast-track payment process but lack motivation to implement or utilize it since increasing payment times is one of their key performance indicators.

3.4.4 Business and strategy

Collecting business and strategy related information is challenging due to the lack of clear owner in Nokia for the collaboration program, as discovered in startup and mentor

interviews. Therefore information is gathered and assembled from employees in various corporate functions.

Scattered responsibility: The employees organizing startup collaboration are at the time of writing this thesis doing so on a voluntary basis and spending extra time on it. Developing the collaboration system further is not part of their job description and therefore there is no real responsibility structure.

Innovation objectives: While it is decided that Nokia is looking for complementary products, innovation objectives do not exist in a more detailed format. The lack of clear objectives lead to many of the problems the mentors and startups are facing such as synergy misalignment and inadequate startup selection. For example, there have been cases where Nokia employees find the product of a startup very compelling and attempt collaboration which ultimately fails due to lack of synergy with Nokia.

Revenue models: There is a lack of guidelines for determining which revenue sharing model should be utilized and how they can be implemented in practice to startup projects. Possible revenue sharing models include sales referrals, product support, resales, licensing and rebranding.

Profitability: While the profitability of collaborating with startups has potential to be high, the absolute profits are normally negligible compared to Nokia's normal business transactions. This may be one of the causes for the low motivation in the units as well as the reason for wishing for as light weight governance model as possible for the program.

Startup scalability risk: A concern regarding the startups' ability to scale up operations and maintain quality is linked to the profitability issue. A startup might struggle to ramp up manufacturing capacity upon receiving a large order which in turn brings risks to Nokia. This applies especially to hardware startups but is also relevant in software startups in case faulty programming causes damages to the customer in large scale.

3.5 Interview conclusion

To conclude the research, findings are processed by combining and restructuring them to help analyzing the results. Findings from different sources and on different topics are

matched together to form a comprehensive view of the problem environment and their interlacing causation relationships.

3.5.1 Program characteristics

Regarding the characteristics of corporate accelerators and other types of collaboration programs, empirical research confirms the findings in literature review. Corporate startup programs generally do not involve equity via corporate venture capital. They offer a narrow array of coaching services and they generate revenue through complementary products. The main sources of motivation for startups to participate in accelerators, both corporate and independent, are market access and connections to investors. Even though gaining credibility is also a major motivator, the reason credibility is desired is to attract customers and funding, and therefore it is not a profound objective.

Active mentors who assist startups in working with the corporation are necessary in all corporate programs. While coaching of entrepreneurial skills is appreciated in incubators and independent accelerators, they are not always seen necessary in corporate accelerators due to the more advanced startup maturity. Coaching does provide a small bonus even to mature startups but it is not among their top motivators. The common challenges regarding startup needs and program offerings are the following:

1. Funding
2. Market access
3. Mentoring
4. Coaching

3.5.2 Challenges at Nokia

The interviews of startups and Nokia employees provided specific information as to why the collaboration between Nokia and startups has at the time of writing this thesis not been fruitful. Some of the problems and challenges identified in the interviews are overlapping or have a high degree of similarity between them. The identified problems and challenges are laid out in their respective categories in Table 3.1 and the

overlapping items are combined as indicated by numbering. Unnumbered problems have not been combined.

Source	Problems		Combined problems
Startups	Communication	①	① Communication
	Lack of motivation in units	②	② Lack of motivation in units
	Unclear vision	①	③ Unclear vision
	Synergy misalignment	④	④ Inadequate startup selection
	Complex partnership process	⑤	⑤ Unsuitable procedures
	Heavy contracts		⑥ Units not involved
	Slow collaboration start		Heavy contracts
Feedback from mentors	Communication	①	Slow collaboration start
	Units not involved	⑥	Lack of resources
	Lack of resources		Matchmaking confusion
	Lack of motivation in units	②	Intellectual property rights
	Unclear vision	①	Liability risks
	Matchmaking confusion		Procurement and legal not involved
	Unsuitable procedures	⑤	Scattered responsibility
	Inadequate startup selection	④	Unclear innovation objectives
	Intellectual property rights		Undefined revenue models
Procurement and legal	Complex partnership process	⑤	Negligible profitability
	Liability risk		Startup scalability risk
	Procurement and legal not involved	⑥	
	Long payment time	⑤	
Business and strategy	Scattered responsibility		
	Unclear innovation objectives		
	Undefined revenue models		
	Negligible profitability		
	Startup scalability risk		

Table 3.1 Combining the most common problems identified in interviews

3.5.3 Commonness of problems

Comparing the problems to the most common causes of failure in corporate startup programs discovered in literature review reveals that Nokia is experiencing very similar problems as most of the other large corporations with same intentions. All of the

common causes of failure are present at Nokia on in some form. The comparison is illustrated in Table 3.2 by numbering the causes of failure and matching them with the problems identified.

Problems at Nokia	
Communication	5
Lack of motivation in units	8
Unclear vision	2 3 6
Inadequate startup selection	1
Unsuitable procedures	4 6
Units not involved	5 8
Heavy contracts	4
Slow collaboration start	
Lack of resources	7
Matchmaking confusion	
Intellectual property rights	
Liability risks	
Disconnection to procurement and legal	5
Scattered responsibility	
Unclear innovation objectives	1
Undefined revenue models	
Negligible profitability	
Startup scalability risk	

Most common causes of failure
1 Unsuited startups
2 Undefined relationship
3 Goal misalignment
4 Process misalignment
5 Lack of communication
6 Unclear startup role
7 Lack of sponsorship
8 Lack of buy-in

Table 3.2 Comparison to causes of failure

3.5.4 Processing findings

The identified problems and challenges in Nokia and in startup accelerators may yet be combined further in higher level categories. The four new categories shall be called foundation, fixed procedures, execution and startup acceleration. The categories consist of main challenges which in turn include all identified problems in Nokia as well as the functions of startup accelerators. Some of the items are included in several main challenges. Their hierarchy is illustrated in Figure 3.1. At this point, the problems are categorized based on where they occur. The source of the problems is therefore not necessary the same category it is located in.

For clarity, may the terms be defined as following:

1. **Problem:** A problem identified in empirical research in chapter 3.2, 3.3 and 3.4
2. **Challenge:** A set of problems occurring at the same location in the process
3. **Category:** A category of challenges with similar characteristics

Foundation

The foundation category contains strategic level issues which need to be resolved on a high level to ensure the program is beneficial for Nokia and allows smooth execution. The topics in foundation category should be defined once and serve as guiding principles for the development of the program. The main challenges within this category and the problems they contain are as follows:

1. **Ownership:** The challenge of ownership refers to the lack of clear ownership and responsibility structure for the program. The responsibility of developing the program and ensuring its success is not assigned to any department, team or employee. Since there is no program owner, resources are difficult to be allocated for its development. The problems of ownership are:
    a. Scattered responsibility
    b. Lack of resources
2. **Objective:** The challenge of objective has its roots in the ownership challenge. Without an owner, defining the strategic objectives for the program becomes difficult since each contributor may have their own views of the direction towards which the program should be developed. This leads to problems later on for startup selection and integration. The strategic objectives also need to consider the likely negligible profitability of collaboration. The problems of Objective are:
    a. Unclear vision
    b. Unclear innovation objectives
    c. Negligible profitability
3. **Business model:** The challenge of business model includes the models of turning startup collaboration into profitable business. The business model cannot be decided before the Objective of Nokia, the higher strategy, has been set. The problems of business model are:
    a. Undefined revenue models
    b. Negligible profitability

Fixed Procedures

The fixed procedure category contains issues in procedures which are not easily adjustable. These procedures are designed for the purposes of interaction with other large corporations and successfully demanding changes to them for the sake of startups is not realistic. Solving the challenges and problems in this category therefore require a different approach than the other two categories. The main challenges within this category and the problems they contain are as follows:

1. **Legal:** The challenge of legal contains all challenges related to the legal relationship and liabilities between startups and Nokia. Nokia is strict with legal matters in order to protect itself even though it causes issues in integrating the startups in Nokia. The problems of legal are:
    a. Unsuitable procedures
    b. Heavy contracts
    c. Intellectual property rights
    d. Liability risks
    e. Disconnection to procurement and legal
2. **Procurement:** The challenge of procurement includes issues related to money transactions and obtaining formal partnership status. Some of the challenges in procurement are dependent on the legal policies to protect Nokia while other problems are independent of legal matters. Issues in procurement also lead to more difficulties in startup integration further along the process. The problems of procurement are:
    a. Unsuitable procedures
    b. Disconnection to procurement and legal

Execution

The execution category contains operational matters and activities directly involving every startup in the collaboration program. The topics in execution category should be flexible and subject to change to improve the program whenever necessary. The main challenges within this category and the problems they contain are as follows:

1. **Selection:** The challenge of selection relates to the issue of having unsuitable startups in the collaboration program. This includes the startups being on a too

early maturity level, their technology being too distant from Nokia's core business or overlapping with Nokia's offering. Lacking involvement of other units is also relevant to selection challenge as it is one of the causes for selection of wrong types of startups. The problems of selection are:

   a. Inadequate startup selection
   b. Units not involved

2. **Integration:** The challenge of integration consists of all activities and operations carried out with startups after their selection to the program. These are technical integration to Nokia's projects, finding pilot customers and other types of business activities. The selection challenge leads to many of the problems in integration such as the lack of motivation in other units due to them not being involved in the process early on. This results in problems with communication. The problems of integration are:

   a. Lack of motivation in units
   b. Communication
   c. Matchmaking confusion

Startup acceleration

The startup acceleration category contains challenges which the startup program needs to address in order to successfully accelerate business growth of startups. It comprises of the common offerings of startup programs and the greatest needs of startups. The main challenges within this category and the problems they contain are as follows:

1. **Funding:** The challenge of funding is relevant to all startups, since funding is the most important goal for startups participating in any type of startup program. Having the startups well-funded allows their better scalability while maintaining quality, reducing Nokia's risk. For Nokia it requires special attention since corporate venture capital shall not be involved in the corporate accelerator program. The problem of funding is:

   a. Startup scalability risk
   b. Funding

2. **Market access:** The challenge of market access is also relevant to all startups participating in corporate startup programs. Startups are looking to expand their

market share and increase sales by utilizing the customer network and credibility of Nokia. The problem of market access is:

   a. Market access

3. **Mentoring:** The challenge of mentoring emphasizes the importance of having the right mentors as bridge builders between the startups and the corporation in corporate startup programs. Without them the startups would have immense difficulties in finding the right employees in the corporation to contact, and would be less likely to get their attention. The problems of mentoring are:
   a. Communication
   b. Matchmaking confusion
4. **Onboarding:** The challenge of onboarding handles issues in the beginning of collaboration between the corporation and each startup. To prevent momentum and drive from fading, the collaboration needs a kick start. The problem of onboarding is:
   a. Slow collaboration start
5. **Coaching:** The challenge of mentoring includes all activities related to having the startup founders learn new skills. While it is not a necessity, it is gives a motivation boost to some startups. The problem of coaching is:
   a. Coaching

The challenge categories of foundation, execution and fixed procedures are nearly solely related to Nokia's structures and operations while the startup acceleration challenge category centralizes on activities to speed up startup business development. This distinction between Nokia-centric challenges and startup-centric challenges becomes useful when prioritizing them in solution development. It also matches the two research sub-problems of Nokia's internal structures and startup business development.

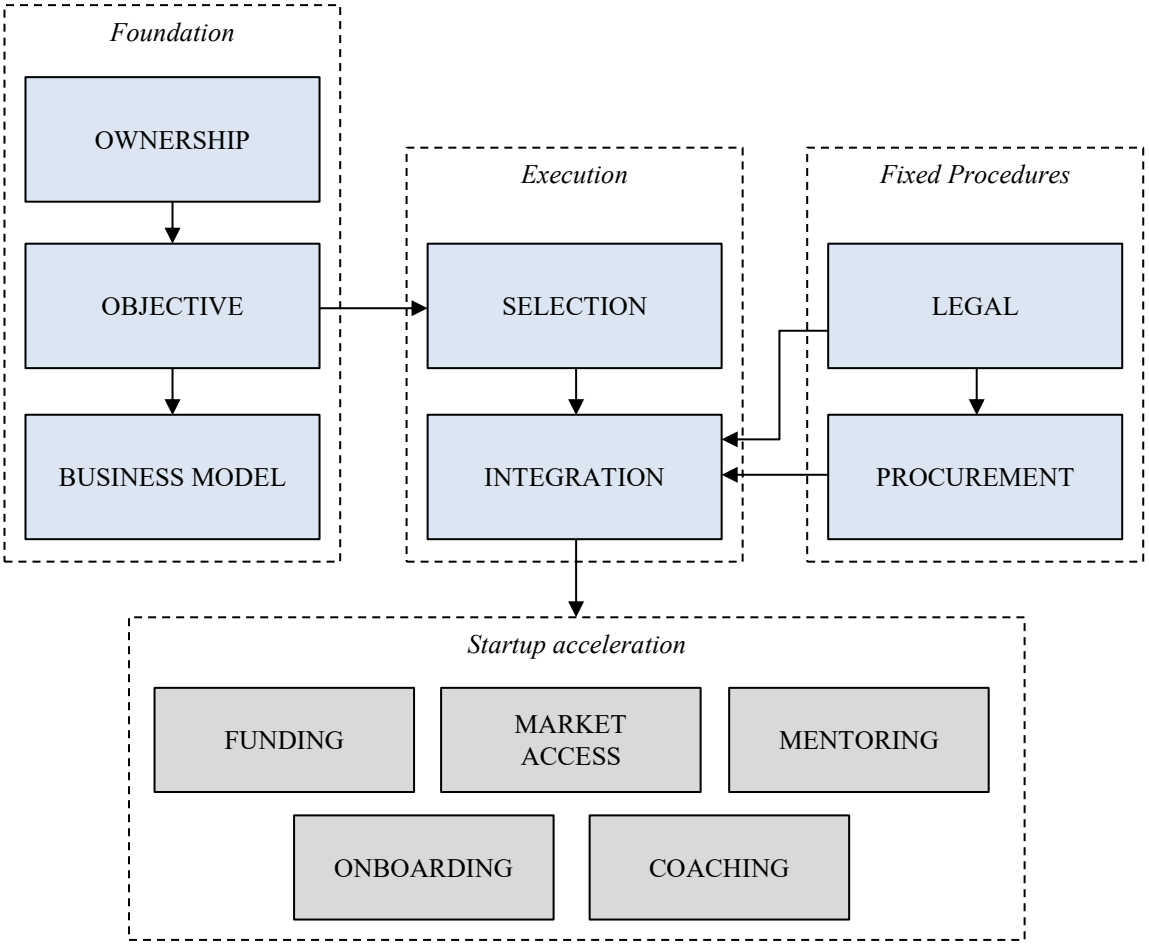

Figure 3.1 Processed findings categorized

4 Corporate startup program development

Based on the theoretical foundation laid in the literature review and the findings of empirical research, the actual implementable form of the collaboration program can be crafted. All previous findings are utilized in order to ensure best possible initial form for the program while keeping in mind the requirements and preferences set by Nokia. The program is created solely for Nokia's purposes and universal applicability is discussed afterwards.

4.1 Development process

Each identified problem in Nokia is examined to find a solution to address it. When a solution has been developed for each identified problem, they shall be fitted together with the theoretical framework introduced in chapter 2.6.

Since developing solutions is to some degree a creative process, a completely standardized approach is not feasible. The case specific nature of this thesis also concurs with this observation as solutions are crafted to address the issues in ways that are tailored for Nokia. However, measures are taken to safeguard the solidity of the development process. These measures include iterative process and external validation.

4.1.1 Development methods

The general principle in the solution development process is to ideate practical ways of connecting the theoretical program framework introduced in chapter 2.6 to the findings while solving the challenges. Since the theoretical framework does not provide any practical level solutions, the solutions are formulated through ideation using the challenges defined in chapter 3.5 and comparing the solutions to the theoretical framework.

Solution ideation is carried out by discussing with Nokia employees and through individual brainstorming. The ideation process is cyclical and includes several discussion sessions with Nokia employees. Between the discussion sessions the solution ideas are improved and reshaped according to the feedback received during the discussions. The purpose of the discussion sessions is to firstly explore the possibilities for creating solutions and to validate realistic implementation. In cases where the

discussed solution is not realistic the cycle reverts back to the ideation or discussion stage depending on the scale of the needed changes. The proposed program is finally validated within the leadership team of Nokia's innovation unit. The progress chart is illustrated in Figure 4.1.

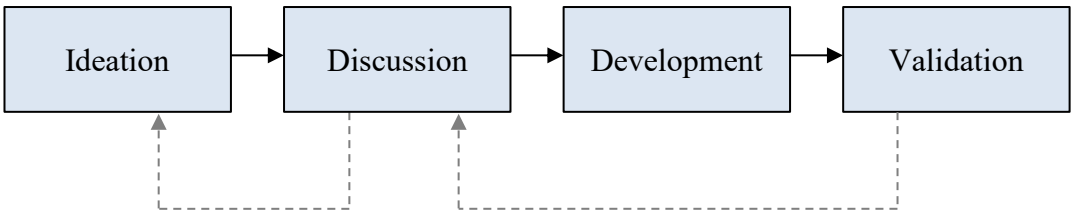

Figure 4.1 Solution development process

Utilizing the identified challenge hierarchy as the basis for solution development is useful as it helps ensure the solutions are addressing all of the challenges. However, the interlacing causation relationships between the challenges must be taken into consideration in solution development. This allows the creation of solutions which are not necessary incremental improvements to the current system but have a whole new approach.

Solutions are developed simultaneously and in turns to find synergies and avoid overlapping. An initial draft of the whole program shall be constructed containing all of its building blocks before finalizing each solution. Since this thesis is case specific to Nokia, in any contradictions between literature review and empirical findings, empirical findings will prevail as the more valuable source.

4.1.2 Development order

Challenges in the foundation category are strategic and have a high level of abstraction. Solving them does therefore not require a specific tool or a concept. Instead, they require decisions from the strategic level of Nokia. While this thesis cannot provide a correct answer to the strategic issues, it shall provide recommendations for the decisions and guidelines for enforcing the strategic direction.

Solution development should be started from the most critical challenges to avoid having to redesign the program later on due to insurmountable issues in the structure. Since the fixed procedures are the most difficult to be changed, it makes sense to craft

solutions to the challenges of fixed procedures first and develop the rest of the program by conforming to these solutions.

The challenges in execution prevent implementation of solutions for startup acceleration and therefore solutions will be created for the execution challenges first. When all Nokia's internal challenges have been solved, the solutions shall be expanded to also fit startup acceleration challenges. These challenges are the closest to startups and the most distant from the corporate structures of Nokia, making them more flexible subjects compared to fixed procedures and foundation.

4.2 Drafting program building blocks

4.2.1 Foundation solution draft

Operations in any organization should be directed towards achieving the main goals of the organization, and therefore a natural place to start developing the program is in the strategic foundation category. The topics of foundation category match well with the tasks of the foundation building block for startup programs introduced in chapter 2.6. The main challenges defined in this category are ownership, objective, and business model. Since the challenges have a unilateral dependency, the challenge which is the highest in hierarchy, ownership, should be examined first.

4.2.1.1 Solving the ownership challenge

The ownership challenge in itself has a fairly simple cause-effect arrangement. Not having a clear project owner means that not one team or person is fully responsible for its development. It is therefore seen as a secondary project and development efforts are done only when employees have extra time, or they use personal hours working on it. Appointing the task of developing and maintaining the startup collaboration program to an employee, program manager, and turning it into a function of innovation unit would elevate the program to a formal status and resources could be allocated to it. The program may or may not be the same person as the owner.

Looking further ahead, it can be observed that the challenges in foundation category are the cause for several problems in execution category. This is evident especially in the problems related to lacking motivation and involvement of technology and business units. As discovered in the mentor interviews during chapter 3.4, the other units are not

motivated to contribute in startup collaboration because they are only involved whenever a startup needs something from them. They feel resources such as time and effort are being stolen from them and they receive little reward for it.

Discussions with Nokia employees suggest that the collaboration lacks buy-in of other unit for the reason that they have no ties to the foundation of the program. A potential solution to this problem is to create personal incentive for high level management in other units for buy-in. A method previously used at another innovation initiative which involves employees across the whole company at Nokia, the Innovation Awards, could also be applied to the startup program to help achieve buy-in and secure resources. The method grants high level managers a sponsorship position, allowing them to participate and stay informed of the development and selection of startups. This enables them to influence the collaboration program to become more suitable for their needs. The sponsors are also honored in the final ceremony and receive publicity. In return, the sponsors allow and encourage employees in their respective units to spend a portion of their time on startup collaboration. Discussion with Nokia employee confirms these incentives have worked previously in receiving buy-in from high-level management.

Having sponsors in the ownership structure mitigates several problems. Business and technology units being involved from the very beginning ensures that the selected startups are suitable for collaboration with the units. It boosts motivation in the units since they are now allowed to spend time with startups and they have participated in their selection. This in turn leads to willingness to work and communicate with the startups.

These recommendations relate to the strategic and organizational matters of the program. They are therefore placed in the foundation building block of theoretical framework.

Recommendations:

1. Appoint a program owner
2. Appoint a program manager
3. Grant program sponsors

4.2.1.2 Solving the objective challenge

The program manager has the mandate to discuss the goals of startup collaboration with the management of other units to form a common innovation objective and decide on technology focus areas. The defined objectives and focus areas are the guiding principles for all startup activity and shall be communicated clearly to everyone participating in the collaboration program. This solves the problem of unclear vision which emerged several times during the interviews. This is a strategic recommendation fitting in the foundation building block.

Recommendation: Define innovation objective and focus areas

4.2.1.3 Solving the business model challenge

Turning startup collaboration into profitable business is not quite enough to justify the effort of creating a startup collaboration program because in the short term the profits are negligible compared to Nokia's ordinary business. Meanwhile, the chief level management in Nokia has actively and increasingly encouraged efforts to look for new business opportunities. These observations suggest that a wide innovation scope is desirable in the innovation objectives. However, this may cause a contradiction with the sponsorship method of ownership challenge since collaboration with startups further away from Nokia's core business requires more effort with no guarantee of success. The motivation and buy-in on other units might be reduced as a result.

A balance has to be found in the innovation scope between complementary products and completely new innovations. Negotiating and determining the scope is the responsibility of the program manager. In short term, implementing a narrow innovation scope would provide a soft start for the collaboration program. The scope may then be expanded in the long term when the program has established its position as one of the innovation functions.

Adopting a new startup program may require practice and getting accustomed by Nokia employees, and therefore it makes sense to "practice" startup collaboration with startups even if their business potential is not game changing. The truly revolutionary startups come by very rarely and Nokia must be ready to work with them smoothly when the opportunity emerges. The recommendation of loosening the innovation scope is a strategic level matter and thus belongs in the foundation building block.

Another problem related to the business model challenge is the lack of guidelines for different revenue sharing models. Mentors need an understanding of the models Nokia can use to collect economic benefit from integrating startups. The most common models are resales and licensing (Nokia sells a startup product), rebranding (Nokia sells a startup product under Nokia's brand), support only (Nokia provides technical support for a startup product for a fee) and sales referral (Nokia introduces a potential customer to a startup). The percentage of revenue shared in each model shall be determined to fit each case individually and their general range shall not be discussed in this thesis due to their confidentiality. Training the mentors and communicating the guidelines helps them better determine how to approach the collaboration with each startup. This is a preparatory level recommendation and it therefore fits in the agile environment building block.

Recommendations:

1. Define a loosening innovation scope
2. Train mentors

4.2.2 Fixed Procedures solution draft

Since the Fixed Procedures are not subject for direct change, a solution needs to be developed to maneuver around them. To find a solution, the profound roots of the problem must first be understood. When an understanding of the whole issue and its environment has been achieved ideation may begin. The main challenges in Fixed Procedures are related to legal and procurement.

Based on the discussions with Nokia employees, the primary cause why procurement processes and legal requirements are strict and tedious is the aspiration to minimize risks for Nokia. The secondary reason is the aim for standardization, meaning the procedures are prepared to handle all possible variations. This causes the procedures to become structurally immensely heavy. The primary and secondary causes for fixed procedure challenges may be explored further:

Primary cause: Exploring the sources of risk exposes that nearly all of the risks of collaboration with external partners are related to customer interactions. The risk of lawsuits, customer dissatisfaction, liability costs of faulty products and so on all emerge

only when Nokia's customers are formally involved in any activities. Product testing, co-development and informal validation for example do not pose nearly the same level of risk as selling products. The primary cause is therefore mainly a legal issue.

Secondary cause: Despite the goal of having a single procedure capable of handling any partnership situation, they are at the time of writing this thesis not prepared for agile collaboration with small companies. Startups are not recognized as a separate partner category which leads to startups being formally treated as large corporations. Due to their key performance indicators the procurement department would rather reduce the amount of categories instead of increasing them for startups. The source of the secondary cause is therefore in procurement.

4.2.2.1 Solving the legal challenge

Observing the primary cause of the fixed procedure challenges brings up the inference that non-risky activities are held back by protection measures aimed towards risky activities. The risk brought forth by customer interactions halts the formalization of even those partnership where such activities are not carried out. A potential approach to solving the challenge is therefore to divide the procedures into categories based on their risk level. This would allow carrying out low-risk activities without the burden of high-risk protection.

Creating three risk categories based on customer involvement serves as a starting point for investigation. The categories and examples of the possible startup activities within them are as follows:

1. **Low risk:** Activities not formally involving Nokia's customers
    a. Technical development
    b. Informal customer validation
    c. Quality testing
2. **Medium risk:** Trial activities involving Nokia's customers
    a. Product trials
    b. Formal customer validation
3. **High risk:** Large scale activities involving Nokia's customers
    a. Sales, licensing, referrals, etc.
    b. Any other activities of Nokia's formal partners

Observing the characteristics of the activities in each category reveals an orderly progression from product development towards product commercialization. This progression does not have internal causational conflicts: Development (low risk) is followed by validation (medium risk) which is followed by business execution (high risk).

Having three separate procedure stages would allow startup collaboration to begin without being burdened by high risk protection, and progress towards formal partnership through the stages. This three stage risk progression model may serve as the core of the program since it allows the main activities Nokia wishes to carry out with startups.

4.2.2.2 Solving the procurement challenge

The approach of dividing procedures into multiple stages conflicts with the secondary cause of fixed procedure challenges. The procurement department prefers using a single standard process for all of their partners. To find solutions for the dilemma, the procurement is looked into in more detail.

The effect of the complex partner registration processes in procurement is the inability to perform currency transactions with startups. Nokia is unable to purchase prototypes for testing purposes, for example, until the startup is a formal partner. From the observation that currency transactions for purchases are the only relevant procurement function to startup collaboration in its early stages, it may be inferred that the complex registration process can be bypassed by replicating this function outside formal procurement.

A miniature procurement function within the innovation unit of Nokia would allow startup activities before completing the complex registration process while also providing more control to the innovation unit over the collaboration program. With this method the formal procurement is not disturbed by constant startup activity.

4.2.2.3 Idea confirmation

Discussion with a procurement employee of Nokia confirms the idea of a miniature procurement function to be realistic and implementable. This frees up the three stage risk progression model from contradicting with the objectives of the procurement

department. The three stage risk progression model is also confirmed possible by a Nokia employee in the legal department. Both ideas may therefore progress to the development stage as concepts.

4.2.2.4 Solution development: Gradual Partnership

May the three stage risk progression model be thereinafter referred to as Gradual Partnership model for more clarity. Since the objective of Gradual Partnership model is to prevent high risk protection from halting less risky activities, the model may be applied to form the central building block of startup programs introduced in chapter 2.6, the Transition Process. The purpose of the Transition Process is to temporarily create a less formal relationship with startups to validate the future benefits of collaboration. It matches with Gradual Partnership which also validates the collaboration before allowing risky activities to take place.

To develop the model further, the characteristics for each stage and the progression requirements need to be defined. As a baseline, a startup advancing from one stage to the next one must first complete the minimum required activities of its current and previous stages. For example, a startup may not advance to the high risk stage to do sales until it has ensured product quality (low risk) and validated customer interest (medium risk).

May the three stages of Gradual Partnership be named test stage, trial stage and partnership stage. Since each stage prepares the startup for the activities of the next stage, defining the content and advancement requirements between the stages should be started from the final stage and worked backwards towards the first stage. The activities of the previous stages may be conducted in the next stage but not the other way around.

Partnership stage: The goal of Gradual Partnership model is achieved in the final stage as the startup becomes a formal partner of Nokia. A startup which has reached the partnership stage may carry out all business activities as any other formal partner of Nokia. This includes all revenue generation practices such as resales and licensing where the risks are the highest. The prerequisites for advancing to the partnership stage are having completed the registration process of procurement and ensured product quality for large scale distribution. Product demand also needs to be fully validated by customers through trials to avoid wasting time and resources.

Trial stage: The trial stage prepares the startup for formal partnership by carrying out product trials with customers and quality testing suited for large scale distribution. The actual format of the trials may vary depending on the product type and target customer. It could, for example, include sending products to a test laboratory of a customer for external testing. The objective is to confirm the demand for the product as well as the quality. While the risks of this type of activity are significantly lower compared to full scale sales, image risk for Nokia's brand is present. To be qualified for the trial stage, the offered product needs to be ready for external testing. Informal market validation should also be done to ensure being on the right path.

Test stage: Technical co-development and integration along with internal quality testing are the main activities in the test stage. Informal market validation is also a central exercise in the test stage. This could be achieved through informal discussions with target customers, for example. These activities pose little to no risks to Nokia. The complex registration process for the formal partners should start immediately upon entering the test stage. Since the test stage is practically the starting stage of the whole startup collaboration program, the prerequisites for this stage should be the same as the selection criteria for startups to enter the program.

The level of risk protection should progress alongside with the amount of risk in each stage, resulting in a loose and informal legal relationship in the first stage and a strict legal relationship in the last stage. Since the risks in test stage are negligible, a simple and general level legal contract stating the intentions of both parties is adequate. Due to its simplicity, the same contract may be used with all startups in the program. As the startup advances to the trial stage and customers are involved, a case specific contract is necessary to protect Nokia from brand risk and possible small scale damages in product trials. The legal relationship in the partnership stage shall be the same as with the regular partners of Nokia. This thesis shall not investigate in detail the exact content of these contracts.

One of the characteristics of successful startup programs introduced in chapter 2.5 is the maximum program duration of 6 months. Since predicting the amount of time required to complete the Gradual Partnership model is difficult, the duration of 6 months shall serve as a justifiable initial duration. However, the program building blocks introduced in chapter 2.6 articulate the need for structural flexibility and therefore extensions

should be allowed to the 6 months when necessary. Since the final stage is an indefinite state, the 6 months period shall tentatively be split equally among the two first stages. The progression model including the stage characteristics is illustrated in Figure 4.2.

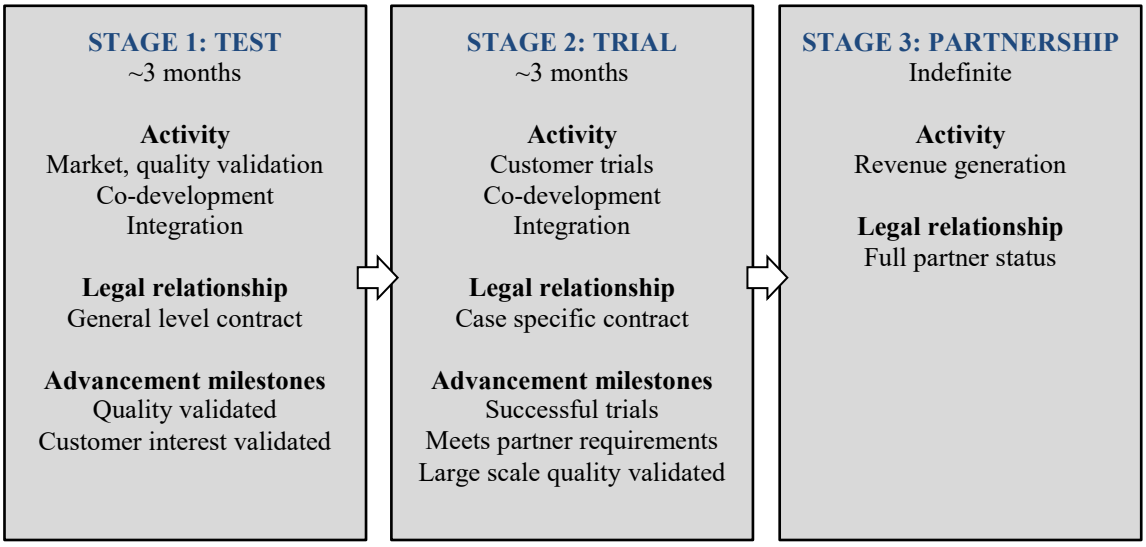

Figure 4.2 Gradual Partnership stages

4.2.2.5 Solution development: Miniature Procurement

The function and structure of Miniature Procurement is far simpler than Gradual Partnership. The objective is to provide Nokia's innovation unit with control over currency transactions with startups by replicating the transaction function of the procurement in miniature scale in the innovation unit. In practice, Miniature Procurement can be implemented by opening up a cash account within the innovation unit which has a periodical budget, an annual budget for example, allocated to it. These funds come from the annual budget of the whole innovation unit. Since it is fully under control of the innovation unit, Miniature Procurement cash account may then be used to cover small expenses much quicker compared to formal procurement and without the need for formal partnership. The process is illustrated in Figure 4.3.

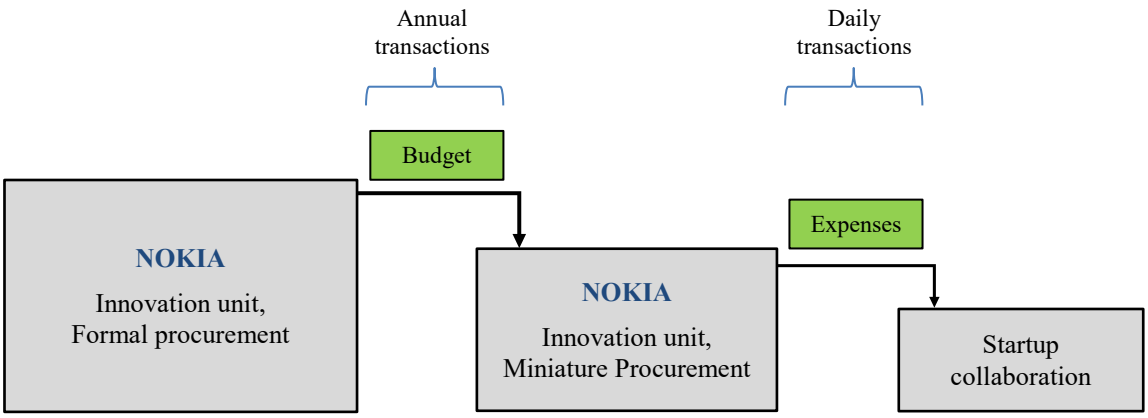

Figure 4.3 Miniature Procurement transaction process

While Gradual Progression forms the whole base structure for the startup program as the Transition Process building block, Miniature Procurement fits as a tool to be utilized throughout the program, at least until the startup becomes a formal partner. The task of adjusting procedures is located in the building block Agile Environment, and therefore Miniature procurement belongs in this block.

4.2.3 Execution solution draft

The challenges in execution category are mostly related to communication and interaction between units within Nokia, as described in chapter 3.5. These are addressed by solving the ownership challenge and therefore the still unsolved topics are the practical level implementation of startup selection, communication and sharing information of Nokia's projects.

4.2.3.1 Solving the selection and integration challenge

As described in chapter 2.5, active outbound recruiting effort is a trait shared by the most successful startup programs. The same result is found by interviewing startup programs: Only having a passive online application form is not enough to attract startups to the program. To find the most suitable startups, a plan regarding event participation, community and ecosystem activity and marketing efforts is necessary. Laying out the recruitment plan which conforms to the available resources is a responsibility of the program manager, as is the communication of Nokia's innovation objectives to everyone involved in startup selection.

To make sure the selected startups can be integrated to Nokia's projects or co-development is feasible, a tool is needed for the mentors to stay informed of the characteristics and needs of currently ongoing projects. As discovered in mentor interviews, the mentors have to manually search through Nokia organization to find suitable projects which could have synergy with startups.

In discussions with Nokia employees an idea of an online startup database which serves as a matchmaking tool was brought up. The Startup Database would list all relevant Nokia projects and all startups, and make browsing them easy for mentors. Convenient browsing can be achieved by assigning specific keywords to each startup and project entry, and filtering them with keywords. To avoid unnecessary complexity the entries in the Startup Database should only contain a brief description and the keywords. This allows quick determining whether a project and a startup are in any way relevant to each other or not, saving time from the mentors. Upon identifying a match between a startup and a Nokia project, the mentor assigned to the startup may contact the project manager and introduce the startup.

The same tool may be used in external communication to display the projects available to startups. For example, external recruiting efforts could be made easier if suitable startups were directed to the online Startup Database to browse Nokia projects and apply for the program through the same tool. The Startup Database also addresses the challenge of integration since through it startups are conveniently matched with suitable projects. It makes communication easier since the collaboration is made relevant to both sides.

4.2.3.2 Idea confirmation

Further discussion with Nokia employees exposes a critical problem with the Startup Database. Many of the Nokia projects are confidential and displaying them publicly as a part of outbound recruiting efforts is out of question. The idea therefore has to be altered to exclude the public feature and use it entirely for internal purposes. The tool may still be used for recruiting purposes since it keeps Nokia employees informed with the projects, making the effort of finding suitable startups easier.

4.2.3.3 Solution development: Startup Database

Nokia already has online platforms where projects are registered. It is technically possible to directly gather data from those tools, though this thesis does not go into detail in the technical delivery. The project managers and mentors may also add entries manually since the required effort is relatively low; writing one sentence introduction and selection of keywords. The objective of the tool is to allow startup mentors to conveniently search projects within Nokia and introduce startups to them.

The structure of the Startup Database is fairly simple: A list of entries with at least a short description and keywords and the options to filter the entries. The tool's user interface is visualized in Figure 4.4. In this form the Startup Database addresses the remaining unsolved problems within Nokia. Due to its simplicity, more features may easily be added after implementation if necessary.

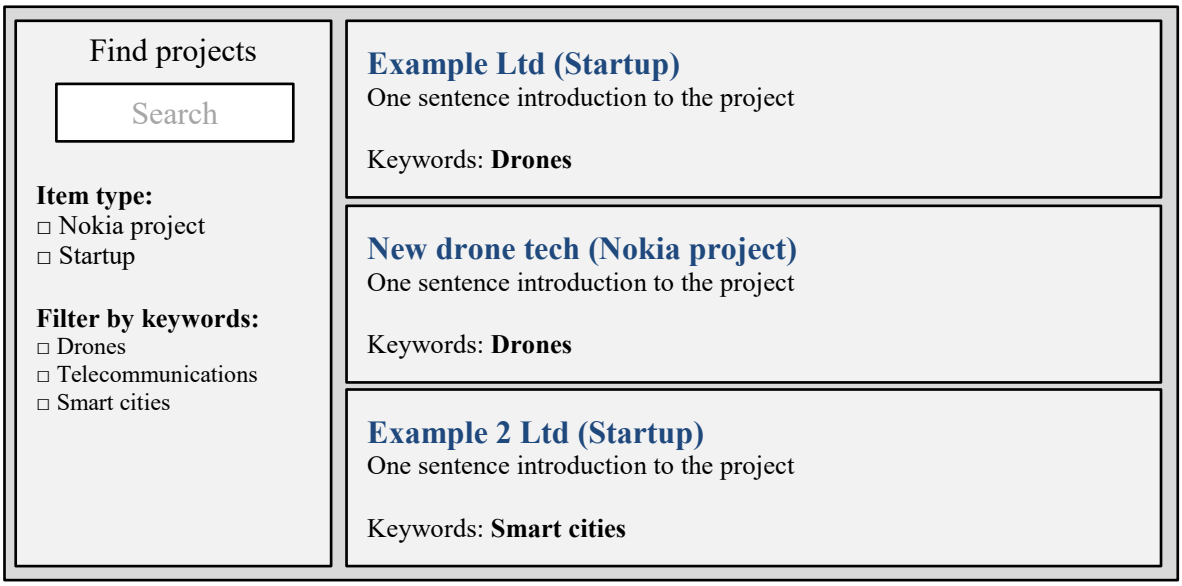

Figure 4.4 Startup Database user interface visualization

Startup Database may be beneficial throughout the whole collaboration with a startup. A startup can fit in several Nokia projects at the same time, and after finishing integration to one project, another project can be searched through the tool. It may also serve as a database of startups. For these reasons the Startup Database fits in the Agile Environment building block.

4.2.4 Critical program structure

The tools and recommendations developed address all problems within foundation, execution and fixed procedure categories identified in Nokia. Matched together with the theoretical framework building blocks introduced in chapter 2.6, the basic program structure is formed according to Table 4.1. This program structure already enables a smoother collaboration between Nokia and startups by solving the most critical problems preventing collaboration.

Critical program structure	
Foundation:	• Program owner • Program manager • Sponsors • Strategic decisions
Agile environment:	• Mentors • Miniature Procurement • Startup Database
Transition process:	Gradual Partnership: 1. Test 2. Trial 3. Partnership
Partnership:	Graduation to a formal partner
Ecosystem:	Serendipity

Table 4.1 The critical components for the program to function

4.3 Integrating acceleration elements

Solving the challenges in startup acceleration category helps the startups grow, which is a benefit for both Nokia and the startup. While the startup acceleration challenges are not critical for the collaboration program to function, they define it as an accelerator. Each challenge is examined together with the solution drafts. Adjustments are made to the solution if necessary to address the startup acceleration challenges. The process is carried out in order of importance, starting from the most important startup acceleration challenge.

4.3.1 Solving the funding challenge

Having all startups advance through the program successfully and start generating revenue with Nokia is a benefit for everyone. Program drop-outs which never reach the

final stage of Gradual Partnership are costly to both parties since time and effort has been wasted. Ensuring product quality and meeting other requirements of formal partnership will be easier and less risky if the startup is well funded. While Nokia will not fund startups itself, measures can be taken to assist startups in receiving funding from external investors.

As illustrated in Table 2.1, the credibility brought by the brand power of the host corporation helps startups convince investors. Nokia may advance startups' efforts by allowing them to leverage Nokia's brand. This can be achieved with many different measures such as permitting startups to inform investors of their participation in Nokia's startup collaboration program. Nokia may deliver transparent information of the goals and progress of the collaboration and provide memorandums of understanding. A memorandum of understanding expresses convergence of will between the parties without being legally binding (Cambridge Dictionary 2017a). It therefore poses no legal risk to Nokia but serves as proof of collaboration intentions for potential investors. Nokia may also mobilize its investor network through Nokia Growth Partners, an independent venture capital firm sponsored by Nokia, to further increase the chances for startups to be funded.

The activities aimed at assisting startups in finding funding are ongoing throughout the program. They do not conflict with any other activities and therefore fit directly into the transition process building block as one of the basic activities.

Recommendation: Assist in finding funding

4.3.2 Solving the market access challenge

Nokia and startups both want the same thing from collaboration: Generating more revenue by delivering more products to customers. Customers are also needed for trialing purposes already before any sales activities are carried out. Interviews with mentors revealed a similar problem with customer information as with Nokia project information: The mentors do not know all the customers in Nokia's network, what their needs and interests are and what kind of complementary products they might want.

Since the problem of finding target customers has similarities with the problem of finding projects, they could potentially be solved with the same tool. The Startup

Database may be expanded include a third category of entries, customers. The mentors then have access to information of startups, projects and customers in the same tool. Using the same set of keywords across all the categories makes entry filtration convenient for mentors, saving time and improving chances of successful collaboration. Each customer in Nokia has an account manager who may create the entries into the tool and serve as the first contact person when a match between a startup, a project and a customer is identified by a mentor.

Solution: Startup Database

4.3.3 Solving the mentoring challenge

The specific problems within the mentoring challenge (communication and matchmaking confusion) have been solved through the Startup Database and foundation recommendations. As discovered in startup interviews, startups are pleased with the personal activity and engagement of their mentors. For these reasons no further actions are required to address the mentoring challenge.

4.3.4 Solving the onboarding challenge

The core of the onboarding challenge is the wasted time in the beginning of collaboration. Previously developed solutions Startup Database and Gradual Partnership both improve the onboarding challenge. They allow collaboration activities before formal partnership and help mentors find suitable projects and customers faster. They do not, however, help startups understand the process, organization structure and roadmap of the collaboration program.

The confusion is solvable by simply preparing guidance material such as descriptions of the program stages and Nokia's innovation objectives. This method fits together with one of the recommendations provided for solving the funding challenge; being transparent to startups about the whole collaboration program and providing informative documentation to startups which they may then use to convince investors. This recommendation is to be carried out in the beginning of the program, designating it to the Transition Process building block.

Recommendation: Provide introduction material

4.3.5 Solving the coaching challenge

Coaching of entrepreneurial skills was seen as a useful bonus by the interviewed startups but far from necessary in a corporate accelerator program. Having an active coaching team at Nokia is therefore not a productive use of resources and thus not a feasible function in the program. However, Nokia does have an extensive selection of online learning material for a multitude of topics. Allowing startups to utilize the learning materials of related topics is an easy way to coach the founders.

According to the interviews, very few startups have their own legal counsel and understanding the legal documentation of Nokia was identified as a problem. Creating contract specific learning material in which the progressive contracts of the three steps of Gradual Partnership are summarized and explained in simple language. This could be done in the form of an appendix document for the actual contracts or included in the online learning materials for startups to use.

Despite not having an internal coaching team to teach entrepreneurial skills to startup founders, Nokia could utilize the coaching resources of local accelerators if necessary. Discussions with independent startup accelerators in Espoo, Finland, confirm the local accelerators are open for discussions about resource sharing partnership. What the accelerator would get in return is to be negotiated by case.

These activities are carried out during the stages of Gradual Partnership. The recommendations therefore fit in the Transition Process building block.

Recommendations:

1. Provide online learning material
2. Collaborate with local accelerators

4.4 Full program structure

With the solutions and recommendations, all identified challenges are addressed. To form the startup collaboration program, these Nokia-specific solutions and recommendations are linked together with the theoretical framework of startup programs introduced in chapter 2.6. A comparison of the tasks defined in theoretical framework and the developed solutions reveals there are overlapping tasks, as illustrated

in Table 4.2 by numbering and matching the items. To form the program, each building block is refined together with the developed solutions.

Theoretical framework		**Nokia solutions**
Building block	**Tasks**	**Recommendations and tools**
Foundation	Define innovation objective ①	① Define innovation objective and focus area
	Define vertical focus ①	② Appoint program owner
	Reserve resources (non-investment) ②④	③ Define loosening innovation scope
	Define desired startup profile ③	④ Grant program sponsors
	Define startup attraction model	Appoint program manager
	Select hosting model	
	Define location	
	Receive executive support	
Agile environment	Involve business units ⑥	⑤ Miniature Procurement
	Appoint motivated and skilled mentors	⑥ Startup Database
	Adjust procedures ⑤	Train mentors
	Allow structural flexibility	
Transition process	Align mutual objectives	⑤ Gradual Partnership
	Define IPR upfront	⑦ Provide online learning material
	Define and communicate roadmap	⑦ Collaborate with local accelerators
	Set environment for fast project testing	Assist in finding funding
	Provide coaching and training ⑦	Provide introduction material
Partnership	Conduct desired business	
Ecosystem	Foster internal and external networking	
	Engage in local ecosystems	

Table 4.2 Combining the solutions with the theoretical framework

4.4.1 Foundation

The Nokia-specific solutions are partially overlapping and complementing the tasks in the foundation building block of theoretical framework. Both include tasks for defining the strategic dimensions of the program as well as more practical level tasks. The items may be combined and rearranged as following recommendations and tools:

1. Appoint program owner
2. Appoint program manager
3. Grant program sponsors
4. Define innovation objective, scope and vertical
5. Receive executive support
6. Define startup attraction model
7. Select hosting model and location

4.4.2 Agile environment

In the agile environment building block, the Nokia-specific solutions offer a practical level solution to the tasks of theoretical framework, namely involving the business units

and adjusting the procedures through Miniature Procurement and Startup Database. While another tool, Gradual Partnership, also addresses the task of adjusting procedures, it does not fit in the agile environment building block due to its temporary and transitional nature. The items may be combined and rearranged as following recommendations and tools:

1. Appoint motivated and skilled mentors
2. Train mentors
3. Create Miniature Procurement
4. Create Startup Database
5. Allow structural flexibility

4.4.3 Gradual Partnership

The three stages of Gradual Partnership tool are the core of the transition process building block. Since all the tasks and recommendations in this section are carried out during the progression, the whole transition process building block may be renamed to Gradual Partnership. The items may be combined and rearranged as following recommendations and tools:

1. Create Gradual Partnership
2. Align mutual objectives
3. Define collaboration roadmap
4. Define IPR upfront
5. Assist in finding funding
6. Provide introduction material
7. Provide online learning material
8. Collaborate with local accelerators

4.4.4 Partnership

The partnership building block represents the state of formal partnership with Nokia in which a startup may conduct business as any other Nokia's partner. It is the final stage of Gradual Partnership and therefore a separate building block is not necessary for it. The activities in partnership building block all depend on the collaboration objectives

defined together between Nokia and the startup during first stages of Gradual Partnership.

Since the amount of startups Nokia shall collaborate with will increase cumulatively over time, the tools in the agile environment may at some point get overburdened. Therefore, the graduated startups should eventually make room for new startups by moving out of the agile environment and start using the conventional corporate processes.

4.4.5 Refined program structure

The refined program structure with the solutions integrated into the modified theoretical framework is illustrated in Figure 4.5. The completed structure addresses the main research problem by providing internal tools for Nokia to make startup collaboration feasible, and by suggesting measures to hasten the development of the startups.

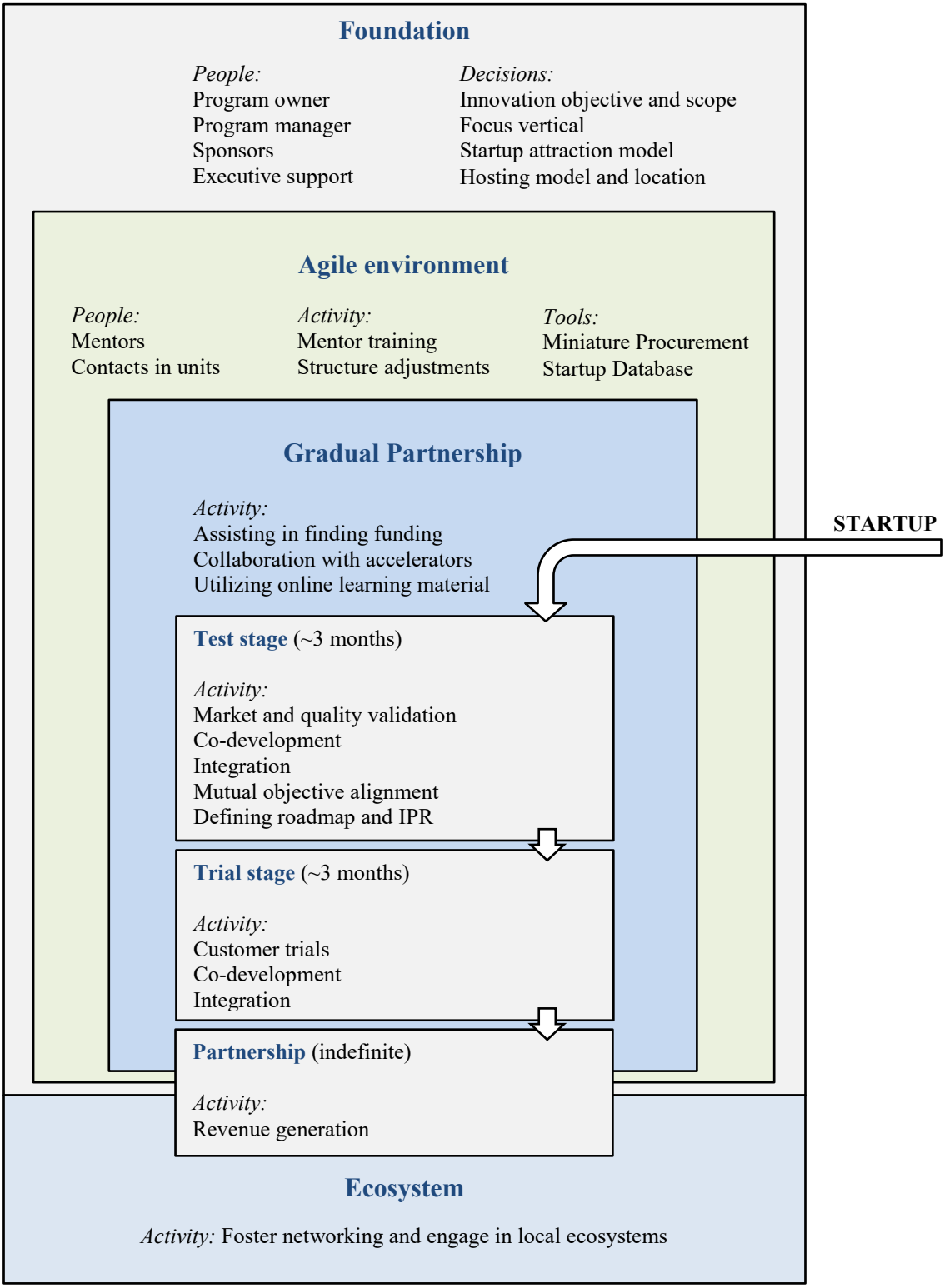

Figure 4.5 Refined structure of the program

5 Corporate Startup Growth Program

The collaboration program developed in this thesis has been customized to a high degree to better fit Nokia and no longer fully resembles a corporate accelerator. It was discovered during discussions with Nokia employees and startups that using the word "accelerator" causes confusion among many, since the word is strongly linked to the traditional independent startup accelerator model. It is therefore rationed to avoid using "accelerator" to describe the program. Corporate Startup Growth Program was found to be a fitting, yet less confusing label for the program. It describes a similar outcome, business growth of startups, without having a strong association to other types of programs.

5.1 Implementation

5.1.1 Setting up the foundation

Appoint program owner: Implementation of the program begins from its foundation by appointing a program owner, formalizing its presence. To ensure a balanced alignment with Nokia's strategy and avoid bias, the program owner should be within the innovation unit which is part of corporate strategy unit in Nokia. Program owner's responsibilities include resource allocation and strategic guidance.

Appoint program manager: The program owner shall appoint a program manager, also in the innovation unit. The program manager is responsible for practical implementation of the program and its further development. The program manager ideally has experience and understanding in how both corporations and startups work, allowing him or her to make better and faster decisions. The program manager should also be able to stay up-to-date and informed of the trends and developments in startup ecosystems.

Grant program sponsors and receive executive support: The sponsor positions shall be granted to managers in business and technology units. Sponsors ensure employees in different units are allowed and encouraged to use their time on startup collaboration projects. The exact nature, benefits and responsibilities of the sponsors shall be negotiated within the group. Executive support for the program may be formalized since

Nokia's chief level management has already expressed its support towards all innovation efforts.

Define innovation objective, scope and vertical: Together with the executives, sponsors and top managers in business and technology units, the program owner with the program manager shall define the strategic innovation objectives, the scope of startups and the technology vertical focus. The scope should initially emphasize ease of integration over innovation value to make the implementation of the program less complex. When the program has been successfully tested with the initial batch of startups the scope may be expanded to include startups further away from Nokia's core business.

Define startup attraction model: A plan for attracting the best startups shall be laid by the program manager. This includes articulating the value proposition of Nokia to startups. The methods of finding startups may vary depending on the desired startup profile but an active and outbound recruitment effort is recommended. The most common and effective methods are scouting in events, scanning personal networks and participation in startup ecosystems.

Select hosting model and location: Since the program is highly customized it should be internally hosted and not involve external platform partners. In discussions with Nokia employees it was determined that a physical location is not desirable since Nokia wants to utilize its global presence to attract the best startups around the world. Coaching activities are not a central part of the program and therefore physical presence is not a necessity. Not having a co-location for startups frees up the option to have a running admission for the program instead of a cohort-based admission. This means there is no fixed annual starting date for a group of startups. Instead, startups join the program as soon as they are selected, making the program more flexible.

5.1.2 Setting up the environment

Appoint motivated and skilled mentors: In the interviews it was suggested that two mentors per startup, one focusing on technology and one focusing on business, is a sufficient amount. The mentors Nokia has previously assigned to startups have received positive feedback from startups on their work and encouragement from the management sponsors should further boost their motivation. Based on previous experience at Nokia,

the time consumption in startup collaboration is expected to be around 10% of normal working time for each mentor.

Create Startup Database: Creation of the online tool may be possible within the current tools Nokia is already using. Having the Startup Database as an add-on or a feature in the current tools is optimal since it requires less effort to create and collecting data may be more feasible. Employees also do not wish to adopt completely new tools and would prefer having them in the same package. The tool shall be developed together by the program manager, mentors and IT department of Nokia. This ensures the tool aligns with the strategic direction, is convenient for the users and is technically realistic to implement.

Create Miniature Procurement: The program manager shall implement the Miniature Procurement by consulting the financial department to open a cash account within the innovation unit. The program owner allocates funds to the account from the annual budget and grants the program manager with mandate to control them. To prevent confusion and misuse, initially only the program manager is authorized to access the funds. As the program matures, other employees may be authorized access if necessary to allow quicker response time and relieve the workload of the program manager. The amount of authorized employees should be kept to minimum.

Train mentors: The program manager shall ensure the mentors are kept informed of all developments related to startup collaboration in Nokia and provide sufficient guidelines for their work with startups. This includes instructions for innovation objectives, roadmap creation, using the Startup Database, revenue sharing models, proper usage of Nokia's brand, most common legal issues and any other operational matter related to startup collaboration. The program manager shall formulate these instructions together with Nokia's experts in each field and keep the information updated. With the help of these instructions mentors should be able to handle the majority of issues with startups themselves and only require expert assistance in special cases.

5.1.3 Setting up Gradual Partnership

Define stage advancement milestones: Since advancing through the three stages of Gradual Partnership is the core of the program, the key milestones which need to be met before advancing must be clearly defined. The most critical milestone is product quality

which becomes a large source of risk as soon as customers are involved. The project manager shall work with Nokia's quality management to lay out a plan for verifying the product quality of all startups in the program. Progressing from test stage to trial stage requires a balance between risk and quality since products are trialed in the testing environment of customers which is more forgiving than actual sales. Progressing from trial stage to partnership stage requires meeting the quality standards of any other product Nokia sells. To avoid misunderstandings, a clear distinction between the two stages must be agreed with the quality management. Another advancement milestone is market validation. Between test stage and trial stage this means receiving positive feedback and openness for future trials from the customer's part. Between trial stage and partnership stage validation requires successful trials or direct willingness from customers to purchase the product.

Define progressive legal relationship: The program manager shall consult the legal department to define the different levels of legal relationship between Nokia and startups. For the test stage a general level contract which states the intentions of both parties and declares confidentiality is sufficient. The contract should be as simple as possible since no high-risk activities are carried out during this stage. Trial stage involves customers in test environment trials and therefore a case specific contract with liabilities is necessary. At this stage, since the risks are still relatively low, the contracts should stay as light weight as possible and understandable by a person without legal expertise. A dedicated contact person in the legal department is needed to verify the case specific contracts. At the final partnership stage the startups reach formal partnership and face the same contracts as other partners unless the legal department agrees to craft a separate contract model for startups in this stage. While certainly helpful, this is not fully necessary.

Define IPR guidelines: Even though all collaboration cases between Nokia and startups are bound to be unique in some way, guidelines need to be defined for handling intellectual property rights in co-development and integration activities. The project manager, mentors and employees of the legal department shall together define the guidelines for the most common types of collaboration cases. The dedicated contact person in the legal department shall help with special cases.

Prepare hand-out materials: The hand-out materials help startups understand the collaboration environment, progression process, milestones, objectives and other aspects of the program to avoid confusion. The program manager and mentors shall prepare the first versions of the hand-out materials and request feedback from startups to improve them. The purpose is to get a kick start for the collaboration and keep startups informed of Nokia's goals.

Prepare to assist in finding funding: The program manager shall agree with the marketing department the degree of acceptable use of Nokia's brand for startup collaboration. Startups need to be able to prove to investors they are collaborating with Nokia. Allowing a startup to display Nokia's logo on their website under certain conditions and displaying the startup's name on the program website is an easy but effective method. The hand-out materials should be tailored with the investors in mind and allow startups to display them as proof. Additionally, the program manager shall discuss with Nokia Growth Partners regarding information exchange between their investor network and the startup program to introduce the startups to the investors.

Prepare coaching capacity: While not critical, providing training to startup founders is appreciated. Together with the mentors and startups, the program manager shall determine which sections of Nokia's online learning material library could be opened to startups. New content needs to be created particularly to help startups understand the legal contracts they are facing. Any topic which requires expertise in a specific field shall be created together with experts of said field. Exploring the offering of local accelerators and the possibility of partnership for coaching services is carried out by the program manager.

Involve and inform all departments: The program manager shall agree with the management of each department and special function, such as sales, procurement and legal affairs, to appoint a dedicated contact employee for the startup program to assist in special situations. The hand-out materials, mentor training and other preparatory work should cover the vast majority of situations with startups and the dedicated contact is only needed in new unique cases. The contact employees shall be briefly informed about each new startup entering the program while avoiding too much disturbance.

Stay flexible: The program manager shall encourage all employees involved in startup collaboration to provide any feedback on how to improve the program and act to fix all

emerged problems with haste. All employees involved should understand that every aspect of the program is subject to change if seen fit.

5.2 Resources

Assuming the program initially has five participating startups at a time, estimation for resource consumption can be formulated. Even though the amount of startups at a time has no fixed limit, five is sufficient to ramp up the program. The amount may be increased later if enough suitable projects are identified and the involved employees are not being overworked.

The human resources required for the program may be estimated based previous experience and the assumption of handling five startups at a time. As discussed, each startup should have two mentors and a dedicated contact employee for the project they are being integrated in. The estimates assume the program has already been implemented. During the implementation phase the required human resources may be higher for a period of time to complete the preparation tasks. The human resource estimates are as follows:

1. Program Manager: 1 employee dedicating 100% (40h / week)
2. Startup mentors: 10 employee dedicating 10% (4h / week each)
3. Project contacts: 5 employees dedicating 10% (4h / week each)
4. Program owner: 1 employee dedicating 5% (2h / week each)
5. Special function contacts: 3-5 employees dedicating 5% (2h / week each)
6. Unit sponsors: 2-4 employees dedicating 2.5% (1h / week each)

The monetary resources required are centralized on the Miniature Procurement tool. The expenditure per startup is estimated to be around 10 000 € during the program based on previous experience. The expenditures include prototype and component purchases, travelling and other collaboration costs. Since the program length is around six months and it holds five startups at a time, ten startups will progress through the program annually. This leads to an estimate of 100 000 € annual budget for the Miniature Procurement account. Other monetary costs include event participation for scouting and promotion purposes. As discovered in startup program interviews, having a large booth may hamper the efforts of startup scouting. Attending to many industry-specific events with a small booth or no booth could therefore prove to be more effective than attending

to few events with a large booth. Assuming a cost of 1000 € for major events and 500 € for minor events, the program manager may attend to four major events and eight minor events a year with 8 000 € budget. This allows participation in one event every month.

5.3 Future development

The program proposed in this thesis is created specifically for Nokia in Finland. It may be directly applicable for large part in other countries as well since Nokia's operations are already globally distributed. Application in other countries should be investigated when it has been tested in Finland and all newly emerged challenges have been solved. This includes weighing the need for a local program manager and other human resources in each location based on how well the program can be duplicated.

The aspects and dynamics of creating a startup ecosystem around the startup program are not discussed in this thesis. Attention should be given to the ecosystem building block as soon as the program has been implemented since ecosystem participation was strongly linked to the success of startup programs in literature review. The characteristics of the program proposed in this thesis, such as the lack of physical location and running admission, should be reviewed when the ecosystem is considered.

5.4 Validation

5.4.1 External validation

After forming the program structure and tools, another two interviews were conducted to discuss how two other large Finnish corporations work with startups and compare the results. It was discovered they have suffered from similar problems as Nokia regarding legal and procurement processes and formulated similar solutions as in this thesis. In both companies these issues are worked around by creating a separate structure for startups in procurement and legal issues. The same concept is behind the Miniature Procurement and Gradual Partnership solutions.

The issue of communication is recognized in the two corporations and has been addressed by allocating the responsibility for startup collaboration to an employee or a team. This thesis reached a similar approach along with other solutions. They also agree on many of the other findings of the thesis such as the importance of active startup

recruitment and utilizing internal contact employees in other units. Detailed information was not disclosed due to confidentiality.

5.4.2 Internal validation

The full program structure was presented to the leadership team of Nokia's innovation unit consisting of innovation, business and legal management to receive confirmation for the suitability of the program. No conflicts, unrealistic solutions or other obstacles for implementing the program were discovered.

5.5 Application outside Nokia

As discovered between literature review, empirical research and external verification, many of the problems found in Nokia also occur in other large corporations. The solutions developed in this thesis may not be directly duplicated in a completely different corporation, but they may serve as inspiration and a reference point for developing case specific solutions in other organizations.

6 Critical review

To fully address the original research problem of how can Nokia better embrace startup collaboration, this thesis has suggested immediately actionable solutions and estimated their resource consumption after implementation. It has also provided a plan for executing the suggested solutions. The plan, however, heavily relies on the ability of the program manager to convince and negotiate with other employees. This underlines the importance of selecting a suitable person to manage the execution of the plan.

6.1 Reliability

Due to the nature of qualitative research, the opinions of individual interviewees may have strong influence on the conclusions of this research. To counteract the issue, the individual impact has been reduced and the trustworthiness of the research has been improved through several methods.

Comparison to literature: The empirical findings were compared to the findings in literature review. Several similarities and no notable contradictions were found in the comparison. The discovered similarities are on a relatively general level, however, making detailed comparisons infeasible.

Variety of sources: The empirical findings emerged in several different interviews. The point of view of the mentors aligned with the experiences of the already participating startups. While the topics were viewed from different angles, the findings from different sources were coherent with each other.

Validation cycles: Utilizing an iterative development cycle with periodical internal validation in Nokia ensured the practical applicability of the solutions. Comparing the developed solutions with the practices in other corporations further verified the reliability of the findings, though detailed information was not disclosed.

While these measures have increased the reliability of the findings and conclusions, a holistic and final solution cannot be guaranteed. Since each case is unique and a similar startup program has not existed in Nokia before, unforeseen issues may arise during implementation.

6.2 Limitations

The research focused mainly on the case company Nokia. Ensuring the applicability of the conclusions in other companies was not among the goals of this thesis. Even though evidence was found that Nokia faces similar challenges as other corporations and that the developed solutions align with practices outside Nokia, the evidence remains on a general level with little detail. The universal applicability of this research can therefore not be determined.

Detailed instructions and the exact requirements of legal contracts, IPR and the financial preparatory arrangements for procurement, for example, were not discussed in this thesis. Instead, their general nature and goals were suggested to help Nokia to define the exact form and content.

6.3 Further research

Peer reviewed research was found to be widely available of independent stand-alone startup programs such as traditional accelerators and incubators. The research on this topic is coherent since these programs normally share the same goal; direct economic returns. For corporate programs, peer reviewed research is more scarce and the literature review therefore relied more on commercial reports. The goals of corporate programs vary greatly, which results in challenges when applying the existing information to new programs.

More research is needed to identify the differences between independent programs and corporate programs, and to search for concrete patterns for success in corporate programs. Helping more corporations collaborate with startups would have a positive impact to all stakeholders. At this point, it is unknown whether or not these patterns exist.

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Appendices

Appendix 1: Interviewee list

Startup program (11)	Interview date (d/m/y)	Interview length (minutes)
Paolo Borella (Vertical Accelerator)	14.2.2017	60
Mikko Kauppinen (General Electric)	25.1.2017	60
Jari Pasanen (Nestholma)	1.2.2017	30
Marika Paakkala (Aalto Startup Centre)	24.1.2017	60
Mikael Huhtamäki (EIT Digital)	30.1.2017	60
Anni Rahiala (Startup Sauna)	25.1.2017	60
Timo Ropponen (Spinverse)	16.3.2017	45
Stella Tuovinen (AaltoES)	20.2.2017	45
Visa Friström (KONE)	26.6.2017	60
Teemu Mäkitalo (Avanto Ventures)	13.6.2017	60
Petri Saarinen (Start North)	30.1.2017	45

Nokia employee (18)	Interview date (d/m/y)	Interview length (minutes)
Bertrand Marquet	6.3.2017	30
Nils Ahlrich	16.2.2017	45
Mathieu Sabourin	Several between 11.1.2017 and 24.3.2017	From 30 to 60
Stephan Litjens	7.3.2017	10
Tuuli Ahava	3.2.2017	60
Jyrki Saraasti	2.2.2017	30
Markku Rauhamaa	17.2.2017	60
Ossi Raita	13.2.2017	30
Ossi Tiainen	16.3.2017	60
Emmanuel Marilly	20.2.2017	60
Tony Hulkkonen	22.3.2017	30
Jari Roivanen	18.5.2017	60
Heikki Rasanen	1.3.2017	60
Mahnoush Renani	Several between 2.1.2017 and 30.6.2017	From 10 to 60
Kirsi Leppä	24.4.2017	60
Anne Pakari	24.4.2017	60
Yann Gaste	8.5.2017	60
Timo Terhovuori	22.3.2017	30

Startup (7)	Interview date (d/m/y)	Interview length (minutes)
Joyce Hung (Mobagel)	21.2.2017 and 24.3.2017	60
Teppo Hemiä (Wirepas)	7.2.2017	60
Einaras Gravrock (Cujo)	21.2.2017	60
Alex Maniatopoulos (Yodiwo)	20.2.2017	60
Jani Huttunen (Finbiosoft)	20.1.2017	email
Tuomas Nyberg (InSite Finland)	30.1.2017	30
Shari Saberi (IsonoHealth)	29.3.2017	30